THE PALESTINE EXPLORATION FUND.

LAST YEAR AND THIS.

THE year 1888 has not been fruitful of discoveries. On the other hand, it has been a year of very good work, and one that has enriched the bibliography of Palestine Research with much that is valuable and enduring.

(1) Herr Conrad Schick has followed up and completed his account of the very interesting discoveries made in the Russian property to the east of the Church of the Holy Sepulchre. We have been in communication with the Russian Exploration Society, and have received from them the most gratifying assurances of assistance. It is possible that some of the opinions first advanced by Herr Schick upon this discovery may have to be modified. For example, he thinks that the granite columns found in the street Khan er-Zeit formed part of Constantine's Propylæum. Sir Charles Wilson, however, is of opinion that these columns probably belonged to the main street of Ælia Capitolina, which was decorated with columns as in the case of Samaria and other cities.

(2) The line of the Second Wall has received no further investigation. But Herr Schick was absent on leave during the summer, and it is hoped that he may be able to resume his search during the present year.

(3) As regards the Sidon Sarcophagi, we are still awaiting the promised work of Hamdi Bey upon them.

(4) The great discovery of the year has been that of the Pool of Bethesda, and fully described in the *Quarterly Statement* for July, 1888. There seems to be very little doubt that we have here the ancient Pool itself.

(5) A cave has been found in Jerusalem, at a depth of 49 feet 6 inches below the surface. It lies south-east of the Church of the Holy Sepulchre. The cave is to be cleared out and thoroughly examined.

(6) Russian excavations at Jericho have proved the existence of former extensive builings, on the site capitals, pillars, lintels, weapons, lamps, and jars, rings, &c., have been found.

(7) Herr Schumacher has surveyed and planned the ruins of Abîl, the Abila of the Decapolis, situated on the south bank of the Yarmûk. We shall give this Report to our Subscribers with the April or July number of the *Quarterly Statement*.

(8) The narrative of the Botanical Expedition of Dr. Post to the Trans-Jordanic regions in the year 1886 was published in the October number of the *Quarterly Statement* for last year. The list of plants collected is a most valuable contribution to the Botany of the country.

(9) Herr Schick has discovered a somewhat remarkable ruin on one of the sand dunes on the coast south of Jaffa. It is called Tell Yûnis, and is described in this number.

The Committee are pleased to announce that a sufficient number of names has been received for the three works—Conder's "Eastern Survey," Ganneau's "Archæological Drawings," and Hart's "Flora and Fauna of the Wady Arabah," to justify the commencement of the work. Major Conder's drawings are already executed and a portion of the work has been set up. The volume will probably be ready in March or April. Names should be sent in as soon as possible. No more than 500 will be printed, and the price, after 250 names have been received, will be raised from seven to twelve guineas.

The Committee have added to their list of publications during the year Schumacher's "Survey of Jaulân." Upwards of 150 plans and sketches of the country were made for the work; the map which accompanies it contains 600 names as compared with 150 in the previous maps. The book is full of new and valuable information on the people and the country.

The Committee have also to announce that by arrangement with Messrs. Bentley and Son, the new edition of the "History of Jerusalem," by Walter Besant and E. H. Palmer, can be obtained by subscribers, carriage paid, for 5*s.* 6*d.*, by application to the Head Office only. The whole set (*see* below) of the Society's works, including this book, can be obtained by application to Mr. George Armstrong, for 37*s.* 6*d.*, carriage paid. The "History of Jerusalem," which was originally published in 1871, and has long been completely out of print, covers a period and is compiled from materials not included in any other work, though some of the contents have been plundered by later works on the same subject. It begins with the siege by Titus and continues to the fourteenth century, including the Early Christian period, the Moslem invasion, the Mediæval pilgrims, the Mohammedan pilgrims, the Crusades, the Latin Kingdom, the victorious career of Saladin, the Crusade of Children, and many other little-known episodes in the history of the city and the country.

The books now contained in the Society's publications comprise an amount of information on Palestine, and on the researches conducted in the country, which can be found in no other publications. It must never be forgotten that no single traveller, however well equipped by previous knowledge, can compete with a scientific body of explorers, instructed in the periods required, and provided with all the instruments necessary for carrying out their work. The books are the following :—

By Major Conder, R.E.—

(1) "Tent Work in Palestine."—A popular account of the survey of Western Palestine, freely illustrated by drawings made by the author himself. This is not a dry record of the sepulchres, or a descriptive catalogue of ruins, springs, and valleys, but a continuous narrative full of observations upon the manners and customs of the people, the Biblical associations of the sites, the Holy City and its memories, and is based upon a six years' experience in the country itself. No other modern traveller has enjoyed the same advantages as Major Conder, or has used his opportunities to better purpose.

(2) "Heth and Moab."—Under this title Major Conder provides a narrative, as bright and as full of interest as "Tent Work," of the expedition for the *Survey of Eastern Palestine*. How the party began by a flying visit to North Syria, in order to discover the Holy City—Kadesh—of the children of Heth; how they fared across the Jordan, and what discoveries they made there, will be found in this volume.

(3) Major Conder's "Syrian Stone Lore."—This volume, the least known of Major Conder's works, is, perhaps, the most valuable. It attempts a task never before approached—the reconstruction of Palestine from its monuments. It shows what we should know of Syria if there were no Bible, and it illustrates the Bible from the monuments.

(4) Major Conder's "Altaic Inscriptions."—This book is an attempt to read the Hittite Inscriptions. The author has seen no reason to change his views since the publication of the work.

(5) Professor Hull's "Mount Seir."—This is a popular account of the Geological Expedition conducted by Professor Hull for the Committee of the Palestine Fund. The part which deals with the Valley of Arabah will be found entirely new and interesting.

(6) Herr Schumacher's "Across the Jordan."

(7) Herr Schumacher's "Jaulân."—These two books must be taken in continuation of Major Conder's works issued as instalments of the unpublished "Survey of Eastern Palestine." They are full of drawings, sketches, and plans, and contain many valuable remarks upon manners and customs.

(8) The Memoirs of Twenty-one Years' Work.—A copy of this book is presented to every subscriber to the Fund who applies for it. The work is a popular account of the researches conducted by the Society during the past twenty-one years of its existence. It will be found not only valuable in itself as an interesting work, but also as a book of reference, and especially useful in order to show what has been doing, and is still doing, by this Society.

(9) Herr Schumacher's Kh. Fahil. The ancient Pella (?), the first retreat of the Christians; with map and illustrations.

(10) Names and Places in the Old and New Testament and Apocrypha, with their modern identifications, with reference to Josephus, the Memoirs, and *Quarterly Statements*.

(11) Besant and Palmer's "History of Jerusalem," already described on p. 2.

The Questions for making an inquiry into the manners and customs of the various peoples and tribes in Syria and the Desert, which were carefully prepared three years ago, and sent out to Palestine, have now begun to furnish the expected replies. They were interrupted by the absence of Dr. Post from Beyrout; he has now returned and has begun to send the answers.

The translation, classification, and publication of these will form a great part of the work for the next year.

The publications for the year 1889, besides those already mentioned, will include Schumacher's "Abila" and his "Southern Ajlûn." These will be presented to subscribers.

We also hope to publish in the autumn Mr. Guy le Strange's new book on Palestine according to the Arabic Geographers.

Work at Jerusalem and elsewhere will be continued as opportunity may offer. Should the long-hoped for Firman be granted, the survey of Eastern Palestine will be renewed.

It will be evident from the above that the Society is vigorous and full of work. At no time has the reputation of the Palestine Exploration Fund stood higher: its publications are in demand over the whole world; its achievements in the illustration of the Bible rise beyond comparison with those of any other institution or private traveller; and it has still an immense quantity of work before it. In those lands whose chief treasures are below the surface it is impossible to say what may be discovered, and at any moment. The Committee can only, however, make general plans, subject to alteration, from motives of expediency and necessity. The management of the Society is conducted on the most economical lines possible, and where there is extravagance of expenditure it is in the presentation to subscribers of the results obtained by their money.

The Committee have resolved that Branch Associations of the Bible Society, all Sunday Schools in union with the Sunday School Institute, the Sunday School Union, and the Wesleyan Sunday School Institute, shall be treated as subscribers and be allowed to purchase the books and maps (by application only to the Secretary) at reduced price.

The friends of the Society are earnestly requested to use the "Memoirs of Twenty-one Years' Work" as a means of showing what the work has been, and what remains to be done.

Subscribers are very earnestly asked :—(1) To pay their subscriptions early in the year—say in January. (2) To pay them direct to Coutts and Co. by a banker's order. (3) If they would rather choose their own time, to send up their subscriptions without being reminded. The Clerical Staff of the Society is small; it is most desirable not to increase it; and if these simple requests are attended to a great saving of clerical labour, postage, and stationery is effected. For instance, there are, say, 3,000 subscribers. If every one of these waits to be reminded, and has to have a receipt sent to him, the Society has to spend £25 a year additional in postage, and to write 6,000 letters, merely to ask for and to acknowledge the receipt of the subscriptions.

It has come to the knowledge of the Committee that certain book hawkers are representing themselves as agents of the Society. The Committee have to caution subscribers that they have no book hawkers in their employ, and that none of their works are sold by any itinerant agents.

Mr. Armstrong has prepared a list of the photographs belonging to the Society, arranged alphabetically according to those Bible names which are illustrated by views. This list is now ready. Those who wish for a copy may send in their names.

The income of the Society, from September 19th to December 20th, inclusive, was—from subscriptions and donations, £318 19*s.* 0*d.*; from all sources, £1,011 13*s.* 8*d.* This amount includes a legacy of £500 from the late Mr. Robert Mackay Smith, of 4, Bellvue Crescent, Edinburgh. The expenditure during the same period was £769 6*s.* 6*d.* On December 20th, the balance in the Bank was £460 17*s.* 7*d.*

Subscribers who do not receive the *Quarterly Statement* regularly are asked to send a note to the Secretary. Great care is taken to forward each number to all who are entitled to receive it, but changes of address and other causes give rise occasionally to omissions.

It does not seem generally known that cases for binding the *Quarterly Statement* can be had by subscribers, on application to the office.

The Committee have resolved upon issuing single sheets of the Great Map (Scale, one inch = one mile) at 2*s.* 6*d.* each to Subscribers.

Subscribers are begged to note the following :—

1. Index to the *Quarterly Statement*, 1869–1880.
2. Cases for Herr Schumacher's "Jaulân."
3. Cases for the *Quarterty Statement.*

Each of these can be had by application to the office at 1*s.* each.

Early numbers of the *Quarterly Statement* are very rare. In order to make up complete sets the Committee will be very glad to receive any of the numbers in the following years :—

1869, 1870. These are numbered I to VII.
1871–1876, 1881, 1883, 1885.

Odd numbers are worth little or nothing. Complete sets of the *Quarterly Statement* are priced in second-hand catalogues from £7 to £10 each.

While desiring to give every publicity to proposed identifications and other theories advanced by officers of the Fund and contributors to the pages of the *Quarterly Statement*, the Committee wish it to be distinctly understood that by publishing them in the *Quarterly Statement* they neither sanction nor adopt them.

The only authorised lecturers for the Society are—

(1) Mr. George St. Clair, F.G.S., Member of the Anthropological Institute and of the Society of Biblical Archæology.

His subjects are :—

(1) *The General Exploration of Palestine.*
(2) *Jerusalem Buried and Recovered.*
(3) *Buried Cities, Egypt and Palestine.*
(4) *Buried Cities of Mesopotamia,* with some account of the Hittites.
(5) *The Moabite Stone and the Pedigree of the English Alphabet.*

Address : Geo. St. Clair, Bristol Road, Birmingham, or at the Office of the Fund.

(2) The Rev. Henry Geary, Vicar of St. Thomas's, Portman Square. His lectures are on the following subjects, and all illustrated by original photographs shown as " dissolving views :"—

The Survey of Western Palestine, as illustrating Bible History.
Palestine East of the Jordan.
The Jerusalem Excavations.
A Restoration of Ancient Jerusalem.

(3) The Rev. James King, Vicar of St. Mary's, Berwick. His subjects are as follows :—

The Survey of Western Palestine.
Jerusalem.
The Hittites.
The Moabite Stone and other monuments.

(4) The Rev. Thomas Harrison, F.R.G.S., Member of the Society of Biblical Archæology, 38, Melrose Gardens, West Kensington Park, W. His subjects are as follows :—

(1) *Research and Discovery in the Holy Land.*
(2) *In the Track of the Israelites from Egypt to Canaan.*
(3) *Bible Scenes in the Light of Modern Science.*

"TELL YUNIS."

The Gardens at Jaffa extend 1½ miles south of the town, where a tract of sand hills begin, 7 miles long and nearly 4 miles broad.

This tract is a blank, bearing only the names of two tribes of wandering Arabs on the large Map of the Palestine Exploration Fund, sheets xiii and xvi.

In making an excursion close to the sea-shore to the south of Jaffa, my attention was arrested by a remarkable knoll named "Tell Yûnis," worthy of insertion in the maps.

In going there one follows the road leading from Jaffa southwards, between the Gardens, having houses on both sides, some of which are old, but the greater number new, to the Saknet el-Jebalîyeh settlement on the hill.

About eight minutes further on, the road descends between sand hills to the sea-shore, and then for 3 miles further along the beach, having on the one side the sea, and on the other steep cliffs about 150 feet high, with a rocky crest in a straight line and uniform height, sometimes broken by small ravines. The road approaches a remarkable hill, having a steep slope in a straight line towards the sea; wide at the basement and narrow at the top, thus forming a regular pyramid. It stands isolated, as north of it is a deep depression, going down nearly to the level of the beach; and on the south there is a regular glen, with a kind of water-course.

As I had no instruments with me I was unable to take regular measurements, but made the notes simply by counting the paces. Its height is about 200 feet, and the top is of comparatively small extent, and is crowned with ruins almost buried in the sand; the line of the walls is, however, still recognisable.

The top was a platform, surrounded by walls of about 70 feet long and nearly 70 feet broad. A building once stood in the middle of it, measuring 45 feet from west to east in length, and 40 feet from north to south in breadth.

This building was divided into three apartments, the middle one being wider than the outer two, and very much resembling a small Basilica. A smaller platform, having ruins also, is in front of the east side of the platform, but on a lower level, which I consider to have been the entrance, having a tower with gate, &c., as from these ruins a kind of road descends through a small ravine, first in a northerly and then in a north-westerly direction to the foot of the hill.

Many fragments of coloured stones—some of which are polished, and of exceedingly white marble—besides many pieces of bricks and pottery, are lying about on the top and round the brow of the hill, giving the impression that the ruins were those of a costly building, and that excavations would give good results.

I hoped to find many interesting things, but did not see any hewn stones of any size, which were, perhaps, already taken away or buried in the sand. Those stones which once belonged to the walls were not hewn like those which are in the neighbourhood of Jaffa, but broken from the cliffs. Behind the hill is a kind of plain, the height of which is not many feet above the beach, and as there are indications that the sea once came nearer to the cliffs, and even to the foot of the hill, it is probable that the plain was a little bay or creek, and that the hill in question was at that time a peninsula.

The question now arises : what site is this, or what stood on the top of this hill ? Its name being "Tell Yûnis," Hill of Jonas, reminds one of the Prophet Jonas, who met with his fate in this neighbourhood.

That a temple, church, or any other monument may have been erected to his memory, we cannot say. There are several sites dedicated to this prophet, leaving out the one at the Euphrates. Major Conder, in the Memoirs ("Special Papers," p. 295), speaks of *four* in this country : one in Meshed, where his tomb was shown at an earlier period ; one south of Jaffa, on the south bank of the River Sukereir, near the sea, and 13 miles to the south of the hill in question, or 17 miles south of Jaffa (about which Major Conder remarks, "probably the traditional spot where the prophet was left by the whale"); the third at Hŭlhûl, near Hebron ; and the fourth at Sarepta, near Tyre. The one now found would be the fifth.

This newly discovered hill is the property of a native at Jaffa, who wishes to sell it. Several Europeans went there, but hitherto no purchase was effected.

C. Schick.

Jerusalem, November 29th, 1888.

IMPROVEMENT OF ROADS IN PALESTINE.

Much zeal on the part of the Government may be observed in the last two or three years for making roads in Palestine.

The existing one, from Jaffa to Jerusalem, has been much improved lately, and the work is still going on.

Not only the line itself is improved, but in many places new and better lines have been made. There are three chief places especially in which such improvements were made :—

1st. The Serpentine line, going down the steep descent into the Kulonieh Valley, west of Jerusalem, was abandoned, and an entirely new line made north of it, on the northern brow of the large valley of "W. Beit Hannîna" and "Kulonieh." The descent now begins at the second watch-tower, and passes near the village of Lifta, in a regular descent of 5 in a 100, along the brow of these barren hills to where it joins the old road, near the new and handsome bridge at Kulonieh. It is

a pity this road was made too narrow, as in the event of two carriages meeting at full speed, collisions would probably ensue.

On this account they are about to widen it, breaking away the rocks, and building parapet walls on the outer edge wherever it is necessary. The distance traversed is somewhat longer, but is proportionally easier.

Some alterations were made on the right side of the valley towards "Kŭstûl," but of minor importance, but at the ridge the bad part will still remain unless a tunnel about 800 feet long is made.

2nd. The second improvement is at Kuryet el-'Enab, where the ascent was always hard work, and driving down it dangerous. It is in some degree longer, but with a gentle descent; also on the other side of the ridge, towards "Saris," it was made better and with more skill even at Saris itself.

3rd. The third is at "Latrôn;" the old line went over the ridge of the Latrôn Hill itself. The new road follows the valley without any rise, and at the same time no longer than the other.

It joins the old road one mile west of the Latrôn Hotel—a misfortune for that establishment—the new road not approaching it. The proprietor must do something to attract travellers.

In the Plain Country several improvements were made, but unhappily the steep ascent at Kubab is still remaining and not improved.

One of the decaying watch-towers near Ramleh was removed and put nearer the road. Through the Gardens at Jaffa the road was made much wider.

The road from Jerusalem to Hebron is finished so that carriages are now going there. At some places the old route was abandoned, and new and better ones made.

The road from Jaffa to Nablus will also be made; some parts being already done.

At Jerusalem the road outside the City, from its north-western corner eastwards along the northern town wall down to the Garden of Gethsemane is now in course of reconstruction, and, when finished, will be carried on to Jericho and the Jordan.

C. Schick.

Jerusalem, December 5th, 1888.

SOME JERUSALEM NOTES.

On the plan of Jerusalem, A.D. 1187, which is given in Professor Hayter Lewis's recent work on the holy places of that city, the "House of the Holy Ghost" is marked. It may not be generally known that a house called by that name still occupies the same position. It is in the western part of the Jewish quarter, and is, or was, inhabited by Jews. The House of Annas appears to be now included in the precincts of the Armenian Convent, and is probably part of the Nunnery and Girls' School known as Deir ez Zeitûny. The Church of St. James is repre-

sented by the magnificent Cathedral of the Armenians, and St. James the Less still exists, in a tolerable state of preservation, in premises adjoining those of the English Church. The Church or Convent of St. Thomas was somewhere near the site now occupied by the Synagogues of the Spanish Jews. I have often searched for Christian remains in that locality under the impression that these buildings, perhaps, occupy an ancient Christian site, but without success, and can only suppose that the chapel or oratory, the apse of which still exists in perfect preservation, in the Street of the Meidan, is part of the establishment of St. Thomas. At the bottom of this street, turning a little to the left, we come to the open space called El Meidan, in which are extensive remains of the ancient Hospice of the German Knights. The ruins of the principal buildings have been turned into dwelling-houses, inhabited by Jews and Moslems, and one part is known as *casa derocada*, the "ruined house." It occupies a prominent and striking position opposite the establishment of the Templars on Mount Moriah, with only the deep central valley (Tyropœon) between. On the western side of the Meidan a well of slightly saline water exists, and there is another two or three hundred yards further west, making three (or four) known to me in the Holy City. The Church of St. Gilles is on this plan placed on the southern side of the street leading to the Temple, but the author of the "Citez de Jerusalem" states that the street of the Germans was on the right-hand side of a person going towards the Temple, and the Monastery of St. Gilles on the left. On the left-hand side of the steep descent leading to the Valley street which comes down from the Damascus Gate is a house belonging to Mohammedans, but now tenanted by Jews, in which are columns and capitals which indicate that a Christian building formerly stood on the spot; and this could be no other than St. Gilles. The Church of St. Ann is well known to everyone under the same name at the present day. St. Magdalen is indicated by the ruins existing to the north-west of St. Ann, in the place called Mamuniyeh, as pointed out by Sir Charles Wilson in his notes to the Ordnance Survey. The Chapel of the Flagellation still remains and is called by its old name, whilst St. Peter ad Vincula, from the situation indicated on the plan, can hardly be other than the Deir el 'Adas now in possession of the Greek Church. The chapel marked to the east of St. Stephen's (Damascus) Gate is apparently that now turned into a mosque under the name Malawiyè. The Church at the south-west corner of the Hospital of St. John still exists, and of course the Church of the Holy Sepulchre, so that the sites of all the ecclesiastical buildings marked in this plan may be readily identified at the present day.

I think it is a mistake to suppose that there are no ancient families of Jews in Jerusalem. Jews were there for centuries before the expulsion from Spain, and some still possess, or did a few years ago possess, hereditary freehold property in the north-east quarter of the city, the ancient Juiverie, which they allege to have come down to them from their remote ancestors. It is hard to make out when the Jews began to dwell beyond the limits of the mediæval Jewry. It is not likely they could have left

it until after the Mohammedan reoccupation, when many Christian dwellings were already become ruinous and deserted; yet Benjamin of Tudela, *circa* 1165, found two hundred dwelling "in one corner of the city, *under the Tower of David.*" Perhaps these were only a portion of the Jewish population, allowed to live in that locality for the convenience of carrying on their occupation of dyeing. The origin of the singular custom of *handing over to the Jews the keys of the city for a few hours on the accession of a new Sultan* is also shrouded in much obscurity. It is said to be connected with the Rabbinic laws relating to the Sabbath boundary עֵרוּב, *Erūb*, and the opinion of the Rabbis of Jerusalem is that it dates from "the time of the Talmud." They affirm that after the Babylonian Captivity (!) the Jews of Jerusalem always endeavoured to obtain the keys of the city gate when a new monarch came to the throne, and to place them in the hands of the Chief Rabbi for a short time, the object being to acquire possession of the city by right of purchase, as it were (for they always had to pay for the privilege), in order that they might legally allow their people to pass and carry objects on the Sabbath from house to house and street to street without infringing the law of Exod. xvi, 29. A friend informs me that on the accession of the present Sultan the Jews applied to the Pasha for the keys and were refused, that they then succeeded in obtaining them from the military authorities who have them in charge, and that the Pasha, who was very angry when he found out what had occurred, was pacified on its being explained that the custom was merely a religious ceremony. Probably the usage arose after the expulsion of the Crusaders, and when the Jews began to spread beyond the limits of their old confined quarter. Modern Eastern Rabbis, like the Rabbis who wrote the Talmud, frequently display a lofty disdain of historical accuracy, and by "after the Babylonian Captivity" we may understand the much later period when Jews of the dispersion began to turn from Babylon westward, and many doubtless took up their residence in Jerusalem.

THOMAS CHAPLIN, M.D.

METEOROLOGICAL OBSERVATIONS.

SARONA 1882.

THE numbers in column 1 of this table show the highest reading of the barometer in each month; of these, the highest are in winter, and the lowest in the summer months. The maximum for the year was in February, viz., 30·249 ins.; in both the years 1880 and 1881 the maximum was in January. In column 2, the lowest in each month are shown; the minimum, 29·545 ins., was in July; in 1880 the minimum was in April, and in 1881 in February; the range of readings in the year was 0·704 inch, being about the same as in the two preceding years. The numbers in the 3rd column show the range of reading in each month; the smallest was in

August, viz., 0·171 inch, and the largest in February, being somewhat more than half an inch, the least and greatest ranges in the two preceding years being about the same values. The numbers in the 4th column show the mean monthly pressure of the atmosphere; the greatest, 30·060 ins., was in January, and the smallest, 29·689 ins. in July; in the years 1880 and 1881 the greatest was in January, as in this year, the smallest in 1880 was in July, and in 1881 in August.

The highest temperature of the air in each month is shown in column 5. The highest in the year was 93°, but which high point was not reached till November 1st; in 1880, the maximum temperature of the year was 103°, on May 23rd, and in 1881 the maximum temperature was 106°, on August 27th. The first day in the year 1882 the temperature exceeded 90° was on the 24th of September, and only on one other day in the month it rose to 90°; in October there were four days when the temperature reached and exceeded 90°; and in November two such days, the highest 93°, took place on the 1st; therefore the temperature reached and exceeded 90° on only eight days in the year; in the year 1880 the temperature exceeded 90° on 36 days, and in 1881 the temperature rose to and exceeded 90° on 27 days.

The numbers in column 6 show the lowest temperature of the air in each month; in January it was as low as 34° on the 30th, and below 40° on eight other nights in the month; in February it was below 40° on four different nights, and in March on one night; therefore the temperature was below 40° on 14 nights in the year; in the year 1880 the temperature was as low as 32° on two nights in January and one in February; and below 40° on 13 other nights, and in 1881 it was below 40° on only two nights; the lowest experienced was 39° on the 6th and 7th of December. The yearly range of temperature was 59°, the range in 1880 was 71°, and in 1881 was 67°. The range of temperature in each month is shown in column 7, and these numbers vary from 25° in August to 47° in November; in 1880 these numbers vary from 25° in August to 53° in both April and May, and in 1881 from 29° in July and September to 51° in May.

The mean of all the highest by day, of the lowest by night, and of the average daily ranges of temperature, are shown in columns 8, 9, and 10, respectively. Of the high day temperature, the lowest was in February, 55°·7; and the highest in September, 87°·2. Of the low night temperature the coldest, 43°·7, took place in January, and the warmest, 68°·7, in August. Both the high day temperature and the low night temperature were very low throughout the year. The mean daily range of temperature in each month are shown in column 10, the smallest was in February, 11°·7, and the largest in October 22°·7.

In column 11, the mean temperature of each month, as found from observations of the maximum and minimum thermometers only are given, the month of the lowest temperature was February, 49°·8; in 1880 the month of the lowest temperature was January, 50°·7; and in 1881 was February, 56°·2. The highest was August, 78°·6; in 1880 and 1881 the months of the highest was also in August, as in this year, and the numbers

were 79° and 80°·1 respectively. The mean temperature for the year was 65°·5, and of the preceding years, viz., 1880 and 1881, were 66°·4 and 66°·7 respectively ; the year was cold, and the months of January, February, May, and June were remarkably cold.

The numbers in columns 12 and 13 are the monthly means of a dry and wet bulb-thermometer, taken daily at 9 a.m., and in column 14 the monthly temperature of the dew-point, or that of the temperature at which dew would have been deposited. The elastic force of vapour is shown in column 15, and in column 16 the water present in a cubic foot of air ; in January and February this was as small as $3\frac{1}{2}$ grains, whilst in July, August, and September it was as large as $7\frac{1}{2}$ grains. The numbers in column 18 show the degree of humidity, saturation being considered 100 ; the smallest number in this column was in October, and the largest in February. The weight of a cubic foot of air under its pressure, temperature, and humidity, at 9 a.m., is shown in column 19.

The most prevalent wind in January was S., and the least prevalent winds were N. and W. In February the most prevalent was S., and the least were W. and N.W. The most prevalent in March was S., and the least were N., N.E., and N.W. In April the most prevalent was S.W., and the least prevalent were N.E. and E. In May the most prevalent were S.W., and W., and the least prevalent were N.E. and S.E. In June the most prevalent were S.W. and W., and the least were N.E. and S.E. In July the most prevalent was S.W., and the least were S., S.E., N., and its compounds. In August the most prevalent was W., and the least E. and N.E. In September the most prevalent was S.E., and the least was E. and its compounds. In October the most prevalent was S.W., and the least was N.E. In November the most prevalent was S.W., and the least were N. and N.W., and in December the most prevalent was S.W., and the least were S. and S.W.

The most prevalent wind for the year was S.W., which occurred on 119 times during the year ; of which 24 were in July, 15 in November, and 14 in September ; and the least prevalent wind for the year was N.E., which occurred on only 12 times during the year, of which 4 were in January, 3 in both February and November, and 2 in December.

The numbers in column 29 show the mean amount of cloud at 9 a.m. ; the month with the smallest amount is June, and the largest February. Of the cumulus, or fine weather cloud, there were 81 instances in the year ; of these there were 18 in July, 16 in August, and 15 in September, and 3 only both in January and February. Of the nimbus, or rain cloud, there was 90 instances in the year of which 16 took place in February, 13 in January, and 12 in both May and December, and 4 only from July to October. Of the cirrus, there were 44 instances in the year. Of the stratus there were 40 instances. Of the cirro-cumulus there were 32 instances. Of the cirro-stratus there were 21 instances in the year, and there were 57 instances of cloudless skies, of which 11 were in October, and 8 in both January and June.

The largest fall of rain for the month in the year was in February, 7·22 ins., of which 1·02 inch fell on the 5th, 0·92 inch on the 10th, and 0·89 inch on the 4th. No rain fell from May 25th till October 20th, with the exception of one day, which was August 10th, when 0·35 inch fell, and so making two periods of 76 and 70 consecutive days without rain. In the year 1880, no rain fell from the 2nd of May till the 18th of October, making a period of 168 consecutive days without rain ; and in 1881 no rain fell from April 20th to November 6th, making a period of 189 consecutive days without rain. The fall of rain in the year was 22·09 ins., being 6·59 ins. less than in 1880, and 4·60 ins. more than in 1881. The number of days on which rain fell was 62, while in 1880 rain fell on 66 days, and in 1881 on 48 days during the year.

JAMES GLAISHER.

THE HOLY SEPULCHRE AND THE DOME OF THE ROCK.

THE value of the "Palestine Pilgrims' Texts" are already becoming evident in many ways, and the intentions of those who projected their publication are being fully realised. Whoever reads Professor Hayter Lewis' admirable work on "The Holy Places of Jerusalem," will see the advantages to be derived from the material they contain. I wish here to acknowledge my indebtedness to them upon a point of some importance connected with the topography of Jerusalem. As far back as January, 1879, a short article of mine appeared in the *Quarterly Statement* entitled "Transference of Sites." In that article will be found described what seemed to me to be some very marked points of resemblance between the Holy Sepulchre and the Dome of the Rock, and the strong probability that the one structure was copied from the other. In Mukaddasi, an Arabic author, whose date is given as about 985 A.D., lately published by the Palestine Pilgrims' Text Society,[1] I find the following passage. The author is describing the Mosque at Damascus—"Now one day I said, speaking to my father's brother, 'O, my uncle, verily it was not well of the Khalîf al Walîd to expend so much of the wealth of the Muslims on the Mosque at Damascus. Had he expended the same on making roads, or for making caravanserais, or in the restoration of the fortresses, it would have been more fitting and more excellent of him.' But my uncle said to me in answer, 'O, my little son, you have not understanding! Verily Al Walîd was right, and he was prompted to do a worthy work. For he beheld Syria to be a country that had long been occupied by the Christians, and he noted herein the beautiful churches still belonging to them, so enchantingly fair, and so

[1] Translated from the Arabic and annotated by Guy Le Strange.

renowned for their splendour : even as are the Kumâmah[1] [the church of the Holy Sepulchre] and the churches of Lydda and Edessa. So he sought to build for the Muslims a mosque that should prevent their regarding these, and that should be unique and a wonder to the world. And in like manner is it not evident how the Khalif, 'Abd al Malik, *noting the greatness of the Dome of the Kumâmah and its magnificence, was moved lest it should dazzle the minds of the Muslims, and hence erected, above the rock, the Dome which now is seen there.*"[2] The italics in the above are here given to show the words which apply to the case in point.

Mr. Fergusson's theory was that the Dome of Rock was the original Holy Sepulchre, and that its transference to its present site took place in the eleventh century ; Mukaddasi writes in the tenth century, and says that the Dome of the Rock was built as a rival to the Holy Sepulchre.

The quotation from Mukaddasi disposes at once of this part of Mr. Fergusson's theory.

Mukaddasi's words do not affirm that the one building was copied from the others, but they permit of that inference. This inference is justified, I think, from the resemblance between the two monuments. Before the marble was built round the Holy Sepulchre, to form the chapel as we see it now, the rock must have stood up under the dome, thus presenting a striking resemblance to the Sakhra. Having realised this identification, it appeared to me, from the arrangement of the pillars supporting the dome of the sepulchre, of which we have the original design still remaining on the western side, that the number was probably twelve, the same as there is under the Dome of the Rock. This was a lucky guess on my part, but I am able now to confirm it by a number of references. The earliest is from Eusebius ; he mentions the "rock standing out erect and alone on a level land, and having only one cavern within it ;"[3] and also that the dome "was encircled by twelve columns [accord-

[1] Al Kumâmah, literally "The Dunghill." This is a designed corruption on the part of the Muslims of "Al Kayâmah"—"anastasis," the name given to the Church of the Resurrection (the Holy Sepulchre) by the Christian Arabs.

[2] Page 22.

[3] Willibald describes the rock at the time of his visit, A.D. 722 : "The rock is now above ground, square at the bottom, but tapering above, with a cross on the summit." Arculf. who is about the same date as Willibald, says that "the whole is covered with choice marble to the very top of the roof, which is adorned with gold, and supports a large golden cross." Arculf may possibly have meant that it was the inside that was covered with marble, otherwise it is difficult to reconcile these two authorities. Antonius Martyr, date 560–570, describes—"The tomb itself, in which the body of Our Lord Jesus Christ was laid, is cut out of the natural rock." These all indicate that the rock was visible in these early days. In the present day the whole tomb outside and inside is so covered with marble that no ordinary pilgrim would be aware of the existence of the rock.

but called the letters *Be*, *Ce*, *De*, &c., and the additional Greek letters in like manner have the names *Chi*, *Phi*, *Psi*, names which suggest a derivation from a syllabary, and from those syllables of the syllabary which had a short vowel sound.

Now, in the Cypriote, although the writing is syllabic, we find that the syllables with a short vowel sound are already beginning to be used as consonants. Thus, in the word Basileus, the final S is represented by *Se*, and in other cases *Ne* stands for N, and so on. Here, then, we see a possible means of evolution for an alphabet, and if the Greek and the Phœnician letters are found to be comparable to the syllables with weak vowel sound used in the Asianic syllabary, we have, I think, the most natural origin possible for the alphabet, and may trace it through the syllabary to the original hieroglyphics of Asia Minor. In this case the larger alphabets of Asia Minor, Greece, and pre-Aryan Italy are to be regarded not as the children but as the sisters of the Phœnician, and we see that the Turanians of Asia Minor (Carians, Caunians, Lycians, &c.) did not abandon their original script, as is now supposed, in favour of Greek letters, but always possessed those letters either as letters or in an earlier stage as syllables.[1]

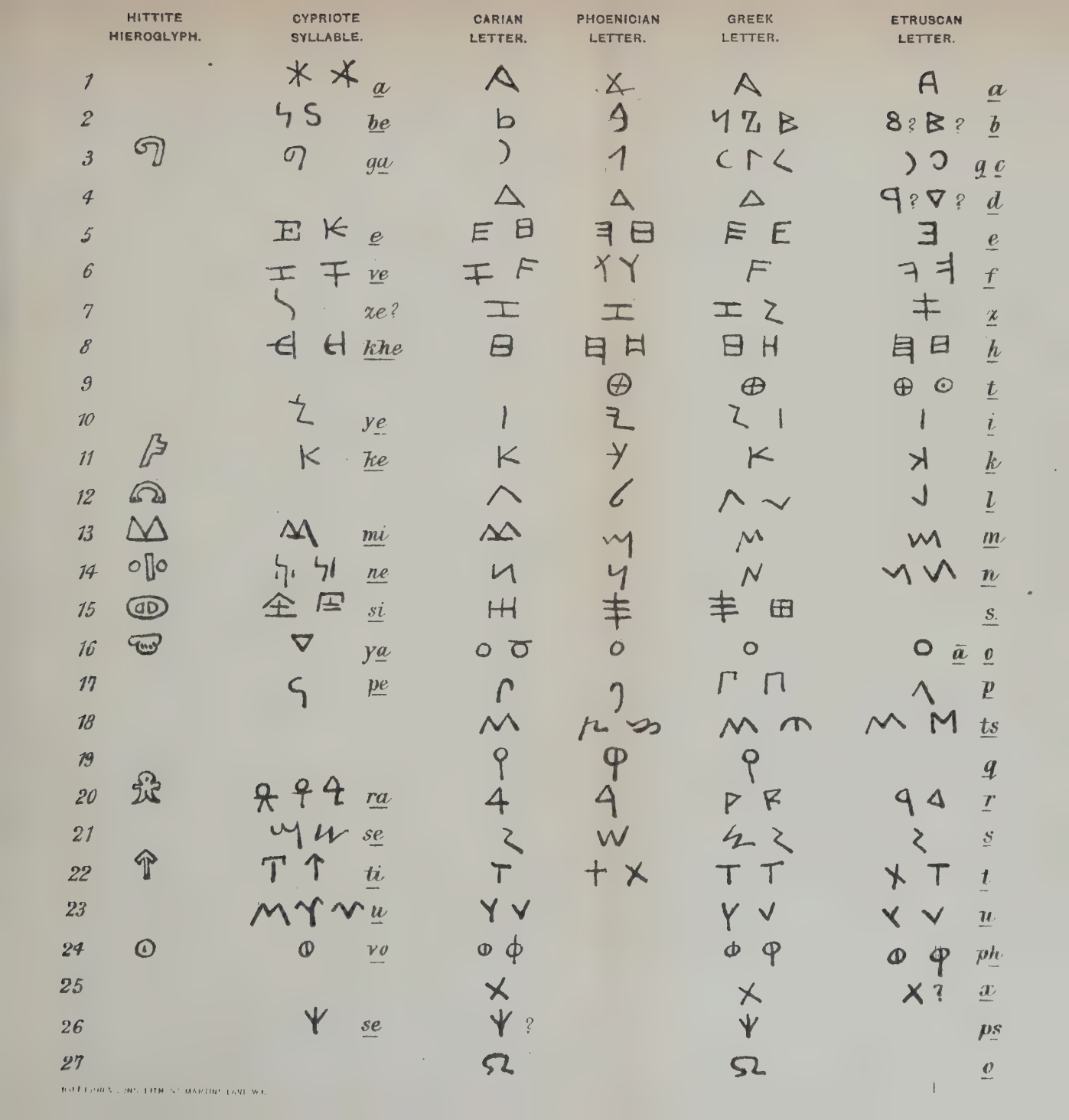
In the Hittite system (so called) there appear to be two classes of signs, just as in Chinese or as in Cuneiform. The one class is the picture or ideogram (the Chinese *Key* or *Radical*), the other class—apparently represented as a rule by smaller emblems—is the weak root or grammatical compliment (the Chinese phonetic), which is used for its *sound* value and not for its picture value. It is, I think, among these phonetics (which are by far the commonest signs on the Hittite texts) that we must search for the original emblems as a rule, while in the syllabary we must confine our comparisons to those syllables which have a short vowel sound, *a*, *ĕ*, *ĭ*, and which we find to have been used as letters in the Cypriote.

The attached plate shows the comparison of the Asia Minor, Greek, Italic, and Phœnician letters with the Cypriote syllables of short vowel sound, and in some cases with the original hieroglyphic. It is possible that in some cases the comparison may be improved, but I do not think that the principles here laid down, can be considered unscientific.

The question of the names of the letters is more difficult. The meaning of the Semitic names is, in many cases uncertain. These names were only used within the sphere of the Phœnician influence, yet in several cases it seems to me that the sound belongs to the original hieroglyphic object, although, with the change from a Turanian to a Semitic language, the name has either been changed or the sound has received a new value, as will appear from a detailed examination.

1. *Aleph.* Possibly an ox head (Accad. *av*, "bull").

[1] The Ionian Alphabet which finally survived in Greece was Asiatic, and perhaps used by the Turanians of Phrygia, Caria, Lydia, and Lycia before the Aryans used it. From Lydia also it would have gone to the Pelasgi and the Etruscans.


HITTITE HIEROGLYPH.
CYPRIOTE SYLLABLE.
CARIAN LETTER.
PHOENICIAN LETTER.
GREEK LETTER.
ETRUSCAN LETTER.
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2. *Beth.* Cypriote *be* is nearest to the early Greek (Melos and Corinth) forms.

3. *Gimel.* Cypriote *ga* ("crook" in Altaic speech).

4. *Daleth.* *See* what is said below.

5. *Heh.* The closed form is the oldest, perhaps from a hieroglyphic representing a house (*E*).

6. *Vau.* The Greek Digamma. Perhaps the Cypriote *ve.* The Cypriote *u* is, however, nearer to the Phœnician form. (*See* No. 27.)

7. *Zain.* Perhaps from a Cypriote *Ze.*

8. *Cheth* appears to be the Cypriote *Che.*

9. *Teth* does not appear to be known as yet in Cypriote.

10. *Yod,* "hand," seems to be the Cypriote *ye,* perhaps from an old hieroglyphic hand (*a, ya,* &c., in Altaic speech—"the right hand.") The Greek form is a single stroke. In Altaic speech *a, ei, yat* are words for "number one." The Greek and Phœnician letters may perhaps have different derivations.

11. *Caph* appears to be the Cypriote *ke.* The word is rendered "hollow of the hand."

12. *Lamed.* *See* what is said below.

13. *Mim.* The Greek and Carian forms suggest a connection with Cypriote *mi* or *me.*

14. *Nun* seems to be a degraded form of the Cypriote *ne.*

15. *Samech.* Apparently the Cypriote *si,* from an emblem for "eye," (*si,* "eye," "see" in Altaic speech). The Pelasgic S would have the same origin.

16. *Ain.* Cypriote *ya,* Carian *a*—a pot in the original hieroglyph (Altaic *a, ya,* &c., "water").

17. *Pe.* Perhaps a variation of *Be* (No. 2).

18. *Tsade.* A letter soon lost in the west.

19. *Koph.* *See* what is said below.

20. *Resh.* The Cypriote *Ra* is tolerably close.

21. *Shin.* Some forms of the Cypriote *se* are similar.

22. *Tau.* In some forms recalls the Cypriote *ti.*

23. *Upsilon* appears to be the Cypriote *u.*

24. *Phi.* Apparently the Cypriote *vo* (or *mo*).

25. *Khi.* *See* what is said below.

26. *Psi.* Apparently the Cypriote *se.*

27. *Omega.* The Carian *o.*

In this comparison it will be noted that out of 27 letters 20 can be traced in Cypriote syllables having short vowel sounds. The comparison is not quite complete, but our knowledge of the syllabary is perhaps not yet complete either. In 10 cases, the original hieroglyph may be suggested.

The Cypriote signs compared are the commoner or normal forms. As regards the names of the Phœnician letters it is only in 15 cases that any Semitic meaning is known to attach to the names, and in many of these there is much doubt. Aleph "ox," Beth "door," Gimel "camel," Vau

"hook," Cheth "fence," Yod "hand," Caph "hollow of hand," Mim "water," Ain "eye," Pe "mouth," Resh "hook," Shin "teeth," are Semitic words, but it is only in the cases of Aleph, Gimel, Vau, Cheth, Yod, and Ain, that any resemblance is supposed to exist between the name and the form.

It is certain that the Greeks knew and adopted the 22 Phœnician letters found in the early alphabets of Thera and Melos, with the exception of the Phœnician Samech and Tsadi.

On the other hand the early alphabets of Abu Simbil and of Ionia and Corinth already include the letters ξφχψω about 620 B.C., omitting Samech and Tsadi, and Digamma. A century later the Greek alphabet was complete, having lost Koppa and Digamma. The Italic alphabets retained Digamma as *F*, with Koppa as *Q*, and Samech occurs in Pelasgic. These Italic alphabets never used the Semitic names. The Greek names Alpha, Beta, Delta, &c., seem to be of Aramean, rather than of Phœnician origin.

The Phœnicians wrote only from right to left. In Cypriote, the texts run both from right to left and left to right. The Greeks (and the Pelasgi) wrote Boustrophedon-wise, or in alternate lines, right to left and left to right, just as did the Hittites. Thus the mode of writing as well as the characters connect Greek epigraphy with Hittite hieroglyphics.

It is to be noted that in the cases of *Teth*, *Tsadi*, and *Koph*, there is a good reason for not finding them in Cypriote. They are Semitic letters, which naturally do not represent sounds of the Greek dialect of Cyprus. *Chi* and *Omega* are late additions to the Greek alphabet, and these not unnaturally do not appear in Cypriote. The only two others not accounted for are *Delta*, the δ and τ not being distinguished in Cypriote, and *Lambda*, which may be the Cypriote *le* or *re*.

The present opinion of some antiquaries that the Greek alphabet has a double origin, appears highly unsatisfactory in view of the manner in which the letters may, in so many other cases, be traced in Cypriote, and nothing could be more natural than a Cypriote derivation for Greek letters, since we know that the Greeks used this character about 400 B.C. The fact that Etruscans, Pelasgi, and the Lycians,[1] Carians, and Phrygians, used the same characters with the Greeks is also easily explained by the Turanian and Asiatic origin of the letters.

C. R. Conder.

[1] The Lycian included five other vowels of doubtful sound not here shown, four of which compare with Cypriote; two of them occur in Carian and one in Phrygian; another vowel, common to Phrygian and Lycian, is to be added, making 33 letters in all. In other respects Lycian is like Carian, though not known to have possessed letters 8, 15, 18, 19, 24, of the table.

THE HEBREW MONTHS.

The calendar used by the Jews after captivity was that of the land of their captivity, but the month names belonging to this calendar are only mentioned in the later books: Ezra i, 7, viii, 19; Neh. i, 1, vi, 15; Esther ii, 16, iii, 7, viii, 9, ix, 26; Zechariah i, 7, viii, 19. Here we find the months—

10.	Tebeth....	....	December January.
11.	Sebat	....	January February.
12.	Adar	....	February March.
1.	Nisan	....	March April.
2.	—	....	April May (Ijar ?).
3.	Sivan	....	May June.
4.	—	....	June July (Tammuz ?).
5.	—	....	July August (Ab ?).
6.	Elul	....	August September.
7.	—	....	September October (Tisri ?).
8.	—	....	October November (Marchesvan ?).
9.	Chisleu	....	November December.

In the cases marked in brackets the month is only mentioned in these books by its number.

In the book of Kings, however, we find the names of three months (1 Kings vi, 1, 38, viii, 2)—

> " in the month Zif, which is the second month."
> " in the month Bul, which is the eighth month."
> " in the month Ethanim, which is the seventh month."

These are the old Hebrew month names which do not occur in the Aramaic calendar, and which already, when the Book of Kings was penned, seem to have required a note to explain when they occurred in the year.

When we turn back to the Pentateuch we find notices of the first month (Exodus xii, 2, xiii, 4, xxiii, 15, xxxiv, 18; Deut. xvi, 1). Hence we learn that up to the time of the Captivity—

Abib	= Nizan	the	first month.
Zif	= Sebat	„	second „
Ethanim	= Tisri	„	seventh „
Bul	= Marchesvan	„	eighth „

But we have no other means of knowing what were the names of the other eight Hebrew months before the Aramaic calendar came into use.

It is usual to suppose that the Aramaic names of the other months

were used by the early Hebrews. This idea arose at a time when the month names had not been recovered in cuneiform records, but were only known from the Bible, and from later Jewish literature. There is not, as far as I can find, a shadow of foundation for this view.

The Assyrian calendar compares with that used after the Captivity, as follows :—

Jewish.	Assyrian.
Nisan.	Nisannu ("beginning").
Ijar.	Airu ("light").
Sivan.	Sivanu ("bricks").
Tammuz.	Dumzu ("sun").
Ab.	Abu.
Elul.	Ululu.
Tisri.	Tasritu ("beginning").
Marchesvan.	Arah Samna ("8th month").
Chisleu.	Kisilivu ("giant").
Tebeth.	Tebituv ("rain").
Sebat.	Sabatu ("storm").
Adar.	Addaru ("dark").

These names occur also in the calendars of Palmyra, of Heliopolis, and of the old Sabeans in South Arabia (with certain exceptions), and are said to have been Babylonian in origin ; but none of these calendars include the names Abib, Zif, Ethanim, Bul.

When, however, we turn to the Phœnician monuments we find the following notices of months.

On the coffin of Eshmunazar we read : "In the month Bul, in the fourteenth year . . ."

On a Phœnician text from Larnaca : "In the new moon of Ethanim."

It is clear from these cases that in all probability the Phœnicians and the Hebrews, before the Captivity, used the same calendar, and that this calendar differed from that of the Babylonians. The Phœnicians continued to use this calendar in Persian times, and apparently after the Jews adopted the Assyrian calendar.

As regards the meanings of the names, we are informed by Gesenius that Abib means "green ear of corn," being the month of corn ripening, but the meaning of Zif seems doubtful, as also Ethanim. Bul he renders "showers," which is equivalent to the Aramaic Tebeth, "rain," the later name of the tenth month. October November is the month of "showers" still in Palestine, and November December of "rain."

The reason why special importance attaches to these month names is that they serve to show, to a certain extent, the age of the books in which they occur. Ezra, Nehemiah, Esther, and Zechariah are late books belonging to the period of Persian rule. Here it is natural to find the Aramaic calendar, but if we found this calendar used in the Pentateuch it would be a critical argument in favour of late date. On the contrary,

we find in both Exodus and Deuteronomy not only the old name Abib, but in Kings the old names used with an explanation, as if already archaic terms requiring some explanation—the Book of Kings being later than the Pentateuch.

Whether the Phœnician calendar was throughout the same as the old Hebrew, whether any names of months were common to the Babylonian and Phœnician systems, and whether every month had a name in the earlier calendar, are questions which, as far as my information goes, remain still unanswered. The "third month" is mentioned in Exodus only by its number (xix, 1); Ezekiel (i, 1) speaks only of the "fourth month" (*cf.* 2 Kings xxv, 3); the "fifth month" (2 Kings xxv, 8; Ezek. xx, 1), the "sixth month" (Ezek. viii, 1), the "twelfth month" (2 Kings xxv, 27), are only mentioned by their numbers before the Captivity.

We possess the names of four other Phœnician months on inscriptions as follows.[1] On a text from Larnaca, in Cyprus, we read זבחשמש ירח, "the month of sacrifices of the sun." On another Larnaca text we find ירח מרפא, which was known at Carthage as מרפאם, showing that the Carthagenian calendar was probably the same as that of Cyprus. This word means "healing," "refreshing," "tranquil." There was a Phœnician God called Baal Merafe. On one of the Dali inscriptions we find ירח כרר[י], the month of "going in a circle," or "dancing."

We have, therefore, apparently names for eight out of the twelve Phœnician months, though in three cases we do not know which month of the year is intended. The eighth is Faaloth, mentioned on the text from Larnaca, which notices Ethanim, and supposed by Renan to be the sixth month. פעלת means "work," "preparation," and if the sixth month be really intended, the reference would no doubt be to the ploughing, which began in September. The sacrifices of the sun may be supposed to have occurred at the time of the summer solstice, and the dances of the ancients frequently took place at the autumnal equinox, or at the winter solstice. The month of "refreshing" or "healing" may have been a cool month, perhaps February March, which would well bear such a designation in Palestine.

Distinguishing these three months by a query, we obtain the following calendar for Phœnicia from the monuments. It is to be observed that these months are lunar. The word for month is ירח, "moon," and so also at Sidon, on the mutilated inscription of Bodashtoreth, the same word occurs.

Phœnician Calendar.

1. (Abib ?), "green ears." Vernal equinox.
2. (Zif ?).
3.
4. (?) Zebakh Shamash, "sun sacrifice." Solstice.

[1] See Renan, "Corpus of Semitic Inscriptions," I.

5.
6. Faalot, "work."
7. Ethanim. Autumnal equinox.
8. Bul, "showers."
9.
10. (?) Carar, "dance." Solstice.
11.
12. (?) Merpa, "refreshment."

It seems more than probable that this Phœnician calendar may have been that of the Hebrews in the days of Solomon.

In the remarks made by critics like Wellhausen on the calendar, I find no reference to this monumental evidence. He regards the fixation of feasts by phases of the moon as a later alteration. But the Hebrews and the Phœnicians had no word for month save "moon," and only saved their calendar from becoming vague, like that of the Moslems, by the interpolation of an additional month. There is no evidence at all that they ever used a true solar year such as the Egyptians possessed. The latter had 12 months of 30 days, and five epagomenæ, or odd days. Even in the days of Ptolemy Euergetes (Decree of Canopus), no allowance is made for the difference of the solar and sidereal year since the rising of Sirius is said to advance one day in four years, although Dr. Birch believed the fixed year to be as old as the days of Rameses II. There is, however, I believe, no known evidence of the use of a true solar, or of a sidereal year, by Semitic people.

C. R. Conder.

NOTES BY MAJOR CONDER.

I.

MEJARKON.

"The yellow water," Josh. xix, 46, in the territory of Dan, near Rakkon (Tell-er-Rakkeit), I have proposed to identify with the *'Aujeh* river, on account of its turbid waters which wash down sand. I find the following note in Pausanias iv, xxxv.

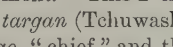
"The country of the Hebrews, too, not far from the city Ioppa, affords a yellow water which is perfectly similar to the colour of blood. This water is near the sea; and they report that Perseus, when he slew the whale to which the daughter of Cepheus was exposed, washed himself from the blood in this fountain."

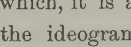
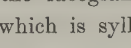
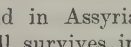
This applies clearly to the 'Aujeh river, near Jaffa, where the story of Perseus was localised.

C. R. C.

II.

TARKU.

On the Hittite bilingual the first word is Tarku  , according to Mr. Pinches' decipherment.[1] This I have already compared with the Turkic *tarkhan* (Uigur), *targan* (Tchuwash), to which I may now add the Mongolian *darga* or *dargo*, "chief," and the Cossack *turughna* having the same meaning.

The corresponding Hittite sign is the head of a goat or deer, or similar horned animal, which, it is agreed, should have the same sound. In cuneiform we find the ideogram for deer to be  , originally perhaps a deer's head, which is syllabically represented by  , *da-ra* in Akkadian, and in Assyrian by  . *tu-ra-khu*. Probably this word still survives in the Hungarian *zerge*, "antelope," and perhaps it may be connected with the Mongolian *turguñ*, meaning "swift."

I find, however, that Dr. Hommel ("Zeitschrift fur Keilschrift-forschung," 1, 2), gives the sound *daragh*, as well as *dara*, for the Akkadian of the ideogram, and regards the Assyrian *turakhu* as a loan word of Akkadian origin.[2] I find, moreover (1, 4), that he has already, in 1884, compared the Hittite Tarku with the Cossack *turughna*, though he does not mention the Turkic and Mongol words.

I have already mentioned that the same word occurs in the Etruscan Tarquin, known in inscriptions as *Tarchi*, *Tarchu*, *Tarchnas*, *Tarcnal*, in proper names (Dennis, "Etruria," 1st edition, vol. ii, p. 41).

It will surely be allowed that the Akkadian word for deer, *darag*, gives a close approximation to the word for "chief" used in so many Altaic languages, so that the deer's head in Akkadian may stand for "chief."

C. R. C.

[1] Preceded by , showing it to be a man's name.

[2] The head on the Hittite bilingual is usually taken for a goat. In Greek we have τράγός for "goat," perhaps not an Aryan word, the common Aryan word being represented by the Sanskrit *agá*. It is also worth notice that in Hungarian *Türkölni* and *Türközni* mean "to butt" like a goat (Bizonfy's "Dictionary"). It occurs also in Esthonian *torkan*, "to thrust," *torgin*, "to pierce," Finnic *turkin*, *turkkān*. It seems, therefore, not improbable that the radical meaning of these words is "that which pierces with its horns," hence stag, goat, &c. Mr. Ball has proposed to compare the Greek δορκας, a gazelle.

III.

ASIA MINOR WORDS.

To the words mentioned in the *Quarterly Statement*, July, 1888, a few may be added from the same lists.

Μόσσυν is said to have been a Moschian word for a "wooden house," and Μυσός a Lydian word for the "beech." Compare the old Turkic *Mas*, "tree," "wood" (in Yakut), and Manchu *muk*, "tree." In this case the first word will be *Mos-un*, "tree house," *un* being Turkic for a dwelling (Akkadian *unu*).

Τεγοῦν, Lydian for a "robber," might be compared with the Yakut *Tüokün*, "a cheater;" and the Lydian | β υ, "much," might compare with Turkish چوب, "much." The Lydian Κοαλαδεῖν, "king," may compare with the Yakut *Koloho*, Russian *Koloba*, "chief." Παλμυς, Lydian for "king," may be connected with the Akkadian *Pal*, "chief;" Hungarian *felem*, "to elevate;" Turkish بالا, *Bala*, "high." In Chagatai, a very ancient Turkic language, we have the verb *Bailamak*, "to govern."

C. R. C.

IV.

KING ORRY'S STONE.

Any correction, even of a passing allusion, should be welcome to an author, and I therefore wish to note one which has been pointed out by three Manx gentlemen for "Heth and Moab."

On page 199 I have written—

"In the Isle of Man the laws are read annually by the stone of King Orry, to whom grass is offered."

This is given as one instance of the well-known fact that corn, fruits, and other objects were offered, to a very late period, at holy stones. Cesnola speaks of the practice in Cyprus, and I have gathered other instances. But some inaccuracy seems to have crept into my allusion.

The laws are not, I find, read at King Orry's stone, for the Tynwald mound, near the church of St. John, is on the other side of the island. The stone is shown near Laxey, but the name of King Orry seems much mixed up with controversies, as was evident at the British Association, 1888, when his name, attached to his supposed grave, was stated to represent a quite modern antiquarian joke.

The more correct form of the statement concerning grass appears to be that a mythical earliest King of Man exacted a bundle of meadow grass as tribute on Midsummer Eve, for all the lands of the island. This is stated in a Manx ballad of the 16th century, and is regarded by my correspondents as simply a manorial custom.

In Brown's "Guide to the Isle of Man," p. 200, I find mentioned "the monolith known as King Orry's stone." It is shown on the Ordnance Survey as a "standing stone," near what seems to be popularly known as "King Orry's grave," some 2 miles from Laxey. On p. 315 of the same guide I find mention of Mannanan "as a Paynim and a necromancer, the first who held the enchanted island. . . . The same ballad informs us that the rent paid to this wizard king was a bundle of coarse meadow grass from each landholder yearly at midsummer, brought by some to the top of the mountain of Barrule, and by others deposited with Mannanan himself at Keamool"—Barrule being on the north-east. The same guide book attributes the Tynwald Mount to King Orry, and regards the rushes there strewn at the annual midsummer ceremony of reading the laws, as "in lieu of a rent charge from the small estate of Cronk." My present correspondents regard it as simply the old custom of carpeting the ground with rushes.

This instance shows in an interesting manner that the Palestine Exploration publications are widely known at home, and any correction, even of a sentence which is not directly connected with Palestine matters, is welcome.

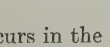
C. R. C.

V.

ESSEBU.

This word appears to connect the Akkadian, in which it is usually rendered "prince," with the Hittite, in the names of the Hittite kings—

Tartisebu,
Akatisebu,

and perhaps occurs in the name of Ispuinis, King of Van. It is interesting in this connection to note that in the language of the Ostiaks of the Narûm, *Essep* still occurs with the meaning "father;" other words in Akkadian and in Turkic speech (such as *Ai*, *Aga*, *Ata*) mean both "father" and "chief." In the dialect of the Ostiaks of Wasynga, we get *Essem* for *Essep* (Klaproth, "Asia Polyglotta"). In the Egyptian the word is spelt  . It may be the near relation of the common Mongolian Esega, "father." The Mongolian *eke*, "mother," occurs in Akkadian, as well as the Turkic *Ama* or *Ana*.

C. R. C.

VI.

JERASH TEXTS.

HAVING had occasion to refer again to the longest of the texts in hexameter at Jerash (P. E. F. *Quarterly Statement*, 1870, September), it appears to me that the writer refers not to a slaughter house, but to the Pagan temple, beside which the church rose.

As churches were not built before the reign of Constantine (at least not such buildings as that at Jerash), the text is probably not older than the 4th century. I did not see this longer text, but copied the shorter one, also in hexameter, concerning a wrestler named Theodorus, whose body is in earth, and his soul in the wide heaven. The forms of the letters on this latter agree with the Greek cross in giving a date not earlier than 330 A.D. I attach a hexameter translation of the longer text in support of my view as to its meaning.

Wonder and awe together the passer by have encountered
Clouds of error are gone and now in place of the darkness
Which was aforetime here the Grace of God is around me.
And when the sound of the groans of the four-footed victims is silenced
Formerly falling here—and dire was the stench that arose :
So that the way faring man must stop his nostrils in passing
Yea and strive to escape the evil smell on the breezes.
Now on the sweet-smelling plain the wandering travellers journey
Lifting up as they go the palm of the right to their faces
Making the honoured sign of the cross as a deed that is holy.
And if you further would ask this also that you may know it
Æneas[1] to me has given this excellent glory
Æneas the all-wise priest well instructed in worship.

C. R. C.

VII.

THE TELL AMARNA TABLETS.

THE recent find of Babylonian Cuneiform tablets between Memphis and Thebes, in Egypt, appears likely to be important in reference to Palestine. The date is believed to be about 1430 B.C., which, according to Usher's "Chronology," would represent the time of Joshua, but perhaps more probably preceded the Hebrew conquest of Palestine. It is not our oldest monumental information, since we have much information about Palestine in the days of Thothmes III, a century and a half earlier, but it is a century

[1] Æneas is a name which occurs in Palestine in the time of Herod as that of a Nabathean ruler in Petra.

before Rameses II. From these tablets it appears that the kings of Mesopotamia were allied to those of Egypt; that trading and political relations existed; that royal intermarriages occurred; that the art work of the East was prized in Egypt; and probably that the Semitic race had occupied Northern Syria, mingling with the Hittite population. We have a notice of Tyre nearly a century earlier than those previously obtained from Egyptian documents; and Cuneiform tablets were sent, we see, to Egypt, though it does not seem certain that the script was there readable, since ambassadors accompanied the letters, who may alone have been able to read them, just as British official letters are not always in the language or character of the recipients, or understood by them.

The city Tunep (*Tennib*) is mentioned in connection with the Hittites, and Tunep appears as a Hittite city in later Egyptian records. Towns called *Gimti* (? Gimzo), near Ashdod, *Kilti*, and *Rabbah*, are mentioned; and *Zumurimma* (*cf.* Zemarites צמר Gen. x, 18, the Simyra of Strabo, xvi, and Zemaraim, Josh. xviii, 22), and *Sardit* (perhaps Sardis): the *Serru*, "at the entrance of the land of Egypt," recall the Shasu tribe called *Saaru*, whose name has been connected with Mount Seir. The city *Abes* recalls *Abez* (Josh. xix, 20, אבץ now probably البيضا *el Beida*, on the north edge of the Plain of Esdraelon); Asi (or Cyprus ?) is also mentioned, and *Tsumura* (Simyra); also the land *Akharra*, "the west" (or Phœnicia).

One of these letters appears to have been sealed in Egypt on arrival with a royal seal. The city *Tsurri* (perhaps Tyre) occurs with *Ziduna*, or Sidon. The land of the *Khatti* or Hittites is also noticed. One letter comes from the king of part of Mesopotamia, east of the Hittite country. This king, who says that his father was at peace with Egypt, asks for an Egyptian princess for his nephew, and sends presents of gold jars, gold plates, and precious stones. In this letter an early notice of the Assyrians as allies is found.

The king of another country, not yet well fixed, but clearly with Semitic rulers, and probably Mesopotamian, sends his ambassador with a letter and with five bronze vessels. These seem not to have been at that time manufactured in Egypt. The Kharu, more than a century before brought such vessels as tribute to Egypt. Trees are also sent; and Thothmes III took trees from Syria as part of his spoils. This monarch also asks the King of Egypt not to make any treaty with the King of the Hittites, or with the King of Shinar. This is an interesting political note, in presence of the fact that Rameses II and his predecessor, as we know from Egyptian records, actually allied themselves with the Hittite Princes.

When we remember how the merchants from Midian took Joseph to Egypt in one of their ordinary trading journeys, these further revelations of the early civilisation of Palestine become highly interesting; and the period appears to be intermediate between the two dates (1600 B.C. and 1340 B.C.) to which our information was formerly confined, when only Egyptian records were known. The existence of a Semitic race in

Phœnicia itself, with rulers from the East, seems to be indicated; thus confirming the traditional view as to the derivation of the Semitic Phœnicians from Chaldea. We hear nothing of the Hebrews, for they were as yet not a power in Palestine, but we hear perhaps of the "Sons of Seir," who were organised under a king when Israel came from Egypt to Edom.

There are other tablets of this series still to be read, which may give us other interesting notes as to Palestine. The find is one of the most important yet made in connection with the monumental history of Syria.

C. R. C.

VIII.

RECENT NOTES ON THE HITTITES.

The recently-published Proceedings, Biblical Archæological Society, contain papers in which some useful notes on the Hittites appear. We should not reproach the author (Rev. C. J. Ball) for his conversion from the belief that the Hittites were Semitic, and in many respects he appears to have profited by recent publications. Armenian, on which he in great measure relies, is not a safe guide, since it is known to be a very mixed language, with a large Turanian vocabulary. Questions of etymology are generally very vexed, but while regarding the Hittites and other tribes as Aryan, he has come to see that some of their names are comparable with Etruscan and other Turanian words. That he does not acknowledge the prior publication of these facts by the Palestine Exploration Fund is of little importance, in view of the furtherance of truth by the acceptance of their work. That he is right in regarding some of the tribes encountered at a late period by the Assyrians as Aryan will probably prove to be the case. This does not touch the question of the Hittite nationality a thousand years earlier. It is to be regretted, however, that he has not treated of words of *known* meaning, such as have been enumerated in the last number of the P. E. F. *Quarterly Statement.*

At the British Association at Bath Prof. Sayce allowed that it was now the general opinion that the Hittites were Mongolic. Dr. Isaac Taylor has published his belief in this view, and I believe I might mention two other authorities who consent. Mr. Ball, however, has not called attention to the existence of some of the words he notices (such as Tarku and Sar) in Turkic and Mongolic dialects. He compares *Tutamu* with Homer's Pelasgian Teutamus ("Iliad," ii, 843), but assumes the Pelasgi to have been Aryans. He discovers the survival of the Hittite name Saplel in a Syriac account of an Armenian King Saplul (as Halevy has previously noted), which is very interesting, but not a safe indication of Aryan origin for the name. He compares Tarku with the Etruscan name Tarcho ("Æn." viii, 506, 603), and Lara with the Etruscan Lar, in both of which remarks he is preceded by my papers in the *Quarterly*

Statement. Etruscan comparisons show, however, a Turanian and not an Aryan affinity. The comparison with the Scythian Targitaus also probably tends in the direction of Turanian origin. The Parthian *torkis*, "king," which he also compares, is, according to Spiegel, not an Iranian (*i.e.*, Aryan) word. *Kamru*, a word he takes to mean house, does not occur in Hittite records.

As regards the inscriptions, he follows "Altaic Hieroglyphs" in comparing the deer's head with *Tar*, *Dara*, and *Darag* (or *Tark*) in Akkadian, but Akkadian is not an Aryan language. He also compares the *Dim* of the bilingual with the Cuneiform *Dim*, as I have previously done in "Altaic Hieroglyphs." He adds an interesting note that the amulet (Hittite, *Ra*) which, as I have noted, was used in Phœnicia and at Carthage, also occurs on Sassanian coins as the emblem of the Fravashi or guardian spirit. He accepts the first emblem of the Hamath stones as meaning "speech," comparing it with the Egyptian determinative, as I have already done in 1883; and he accepts my value *Ne* for the Hittite pronoun emblem. The following principles, which he lays down, are all strictly adhered to in my decipherment, but were, in cases 2 and 3, disregarded by Mr. Ball, when he attempted to read the Hamath stones as Hebrew in 1887.[1]

(1.) The inscriptions are to be read *towards* the faces (meaning from the end, towards which the faces look).

(2.) Symbols placed one above the other are to be read vertically downwards from top to bottom, and this order is invariable. This is true, and is the case in the Akkadian texts of Tel-lo. Mr. Ball formerly read without regard to this law.

(3.) Like the Egyptian the character is partly ideographic, partly phonetic. This has been pointed out clearly in my previous papers, but I think Mr. Ball hardly gives enough attention to the ideographic value.

(4.) The text J. 1 reads A. B. C. D. This is clear when the original is inspected. Prof. Sayce, reading from a photograph, has unfortunately been misled into reading A. C. B. D.

[1] As showing the vague results of etymology from single unknown sounds we may instance Antar. Mr. Ball renders "forest" from Armenian. In Etruscan, antar means "eagle." *Thamima*, "sea," he compares with *Támara*. Surely it is as near *Tiamat*, the Akkadian "ocean." If the Aryan *çara* means "head," "leader," so does the Turanian *Tsar*. If *Bag* is to be compared with the Aryan *Bâgha*, it equally compares with the Turanian *Bak*. These facts are in some cases explained by the Aryan and Turanian roots being the same, but if exception be taken to comparing Hittite with the earliest languages of Western Asia, which are not Semitic, that objection is tenfold stronger when modern languages of mixed character, like Armenian or Georgian are used. The same applies to comparing Cypriote direct with Cuneiform. Mr. Ball gives twenty-six cases, of which I believe *three* are correct. As to his proposals for translating a few groups on the monuments, the arguments do not appear to be very strong, and further study of the symbols may lead him to see that the proposed values are untenable.

The objections in principle which, it seems to me, will be raised to Mr. Ball's system are, 1st, that he has paid no attention to words of *known* meaning, but relies on etymologies of names which he compares without distinction with Aryan and Turanian languages, and with mixed languages like Armenian. 2nd, that in comparing Cypriote and Cuneiform he compares *late* forms, which are always misleading, and does not adhere to one epoch (which should be the *oldest* known), and places his Cuneiform emblems erect or prostrate, as suits the comparison, instead of adhering to the oldest erect forms. 3rd, that when emblems which differ occur in groups with emblems the same in the groups compared, the different emblems are regarded as equivalent. Prof. Sayce has done the same, but there is no safe ground for such a supposition any more than if we were to find C. A. B. on one text and C. O. B. on another, and should argue that therefore A. is the same as O. There are only about 130 known Hittite emblems, of which about 50 (probably phonetics) are very common. The presumption, therefore, is that these (as in Medic and other syllabaries) had each a distinct sound, and not that two or more had the same sound, and were used as equivalents. 4th, that he has made no exhaustive study of any single emblem as regards its position in the texts; and 5th, which is also a matter of principle, that he reproduces in many cases the work of others without any acknowledgment.

C. R. C.

NOTE ON MR. I. C. RUSSELL'S PAPER ON THE JORDAN ARABAH AND THE DEAD SEA.

By Professor Edward Hull, LL.D., F.R.S.

[Extracted from the *Geol. Mag.* Dec. III. Vol. V. No. 11, 1888.]

I have been very much interested in reading Mr. Russell's two communications published in the "Geological Magazine" for August and September last.[1] The analogy which he draws between the history of the Dead Sea valley and that of some of the lake valleys in the western part of North America is instructive as showing how similar physical features can be accounted for on similar principles of interpretation over all parts of the world. Mr. Russell very properly draws attention to the paper by his colleague Mr. G. K. Gilbert on "The Topographical Features of Lake Shores," in which principles of interpretation of physical phenomena are laid down applicable to lakes both of America and the Jordan-Arabah valley.[2] With some of Mr. Russell's inferences regarding special epochs in the history of this valley I am very much disposed to agree; more particularly in reference to the mode of formation of the Salt Mountain,

[1] "The Jordan-Arabah Depression and the Dead Sea," "Geol. Mag." Aug. and Sept. 1888, pp. 337-344 and 387-395.

[2] Gilbert, Fifth Annual Report U.S. Geological Survey (1883-84).

Jebel Usdum; or rather, of the salt-rock which forms the lower part of its mass. If this interpretation be correct, it removes the difficulty of understanding why the rock-salt is confined to one small corner of the lake, which, at the time the salt was in course of formation, was vastly more extensive than at present.

The case of the arm of the Caspian known as Kara Bughaz, which Mr. Russell cites, seems remarkably apposite to that of the Southern bay of the Dead Sea; and I feel obliged to the author for his suggestion. In reference to Mr. Russell's statement that "we ought to look for an unconformity between the upper and lower lake beds due to the erosion of the lower member," I wish to take this opportunity of referring again to the peculiar structure in the rock-salt near the northern end of Jebel Usdum, where the white laminated marls, forming the upper part of this plateau, are seen resting horizontally on a mass of rock-salt, having an oblique structure; that is, traversed by planes sloping southwards at an angle of about 20°–25°. I made a sketch of this part of the cliff in my note-book, but from inability, through lack of time, to examine into the phenomena with more care than can be done from horseback, I thought it prudent not to refer to the matter in the "Geological Memoir,"[1] further than to notice it.

My special purpose in this communication is to offer some additional information to that already given on the question whether or not the Jordan-Arabah valley originally communicated with the ocean through the Gulf of Akabah. Mr. Russell is not satisfied with the information already before him regarding the nature of the watershed of the Arabah. I have, therefore, referred back to my notes, which are rather full on this very subject, though I did not consider it necessary to give them *in extenso* in the "Geological Memoir," or in "Mount Seir." On referring to the large Map of the Arabah Valley in the "Memoir" (facing p. 137), it will be seen that the watershed (Lat. 30° 10′ N.) is formed partly of a limestone ridge called Er Rishy, and partly of "gravel of the Arabah." This gravel extends for several miles down both slopes of the watershed, and is sometimes overspread by blown sand, or else by alluvium. On the west side it is bounded by the steep, often precipitous, cliff of the rocks forming the eastern border of the Desert of the Tîh (Badiet et Tîh), and on the east by those of the Edomite hills and escarpments; and at its lowest part rises about 700 feet above the level of the Mediterranean and Red Seas,[2] and therefore nearly 2,000 feet above the present surface of the Dead Sea. On approaching the watershed, or saddle, from the south, it appears as a level line stretching from the northern end of Er Rishy to the foot of the rugged hills of Edom, and about half a mile in length. It is formed of

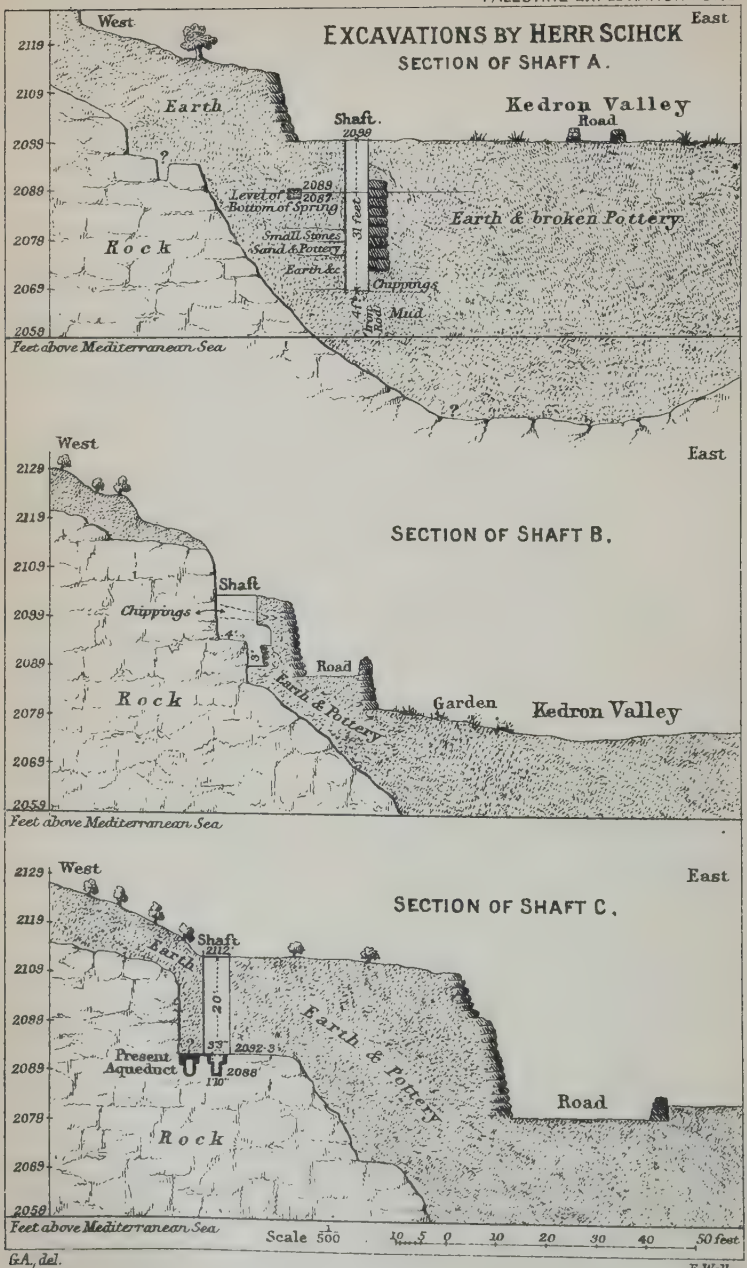
[1] "Memoir on the Physical Geology of Arabia-Petræa and Palestine," p. 84 (1886).

[2] M. Vignes' determination is 787 feet (240 mètres); that of Major, now Colonel Kitchener, is 660 feet; and that of Mr. Reginald Laurence by aneroid 650 feet.

sand and gravel of considerable thickness overlying the limestone which rises from beneath on the eastern side, and which is broken off by the great Jordan-Arabah fault against the granitoid and other crystalline rocks, which here form the base of the Edomite range. This gravel has all the appearance of a fluviatile, or alluvial, deposit, formed by the streams which in flood time descend from the hills to the east; and it is well laid open to view in one of these streams, which ultimately joins the River Jeib. Between this watershed and the first of the terraces which can, with any degree of certainty, be referred to a lacustrine origin, there is a distance of over twenty miles, and a vertical fall of about 700 or 650 feet; and as our party was scattered over the valley, we could not have failed to detect remains of such lacustrine deposits, if any such existed, above the level of those we encountered at our camp of the 12th December, 1883, at Ain Abu Werideh: at a level approximately that of the Mediterranean, and 1,292 feet above that of the Dead Sea.[1] These horizontal beds of white marl with shells, sand, and shingle, was an entirely new feature to us all; and no doubt remains on my mind that they indicate the highest level to which the waters of the ancient Jordan-valley Lake formerly rose.

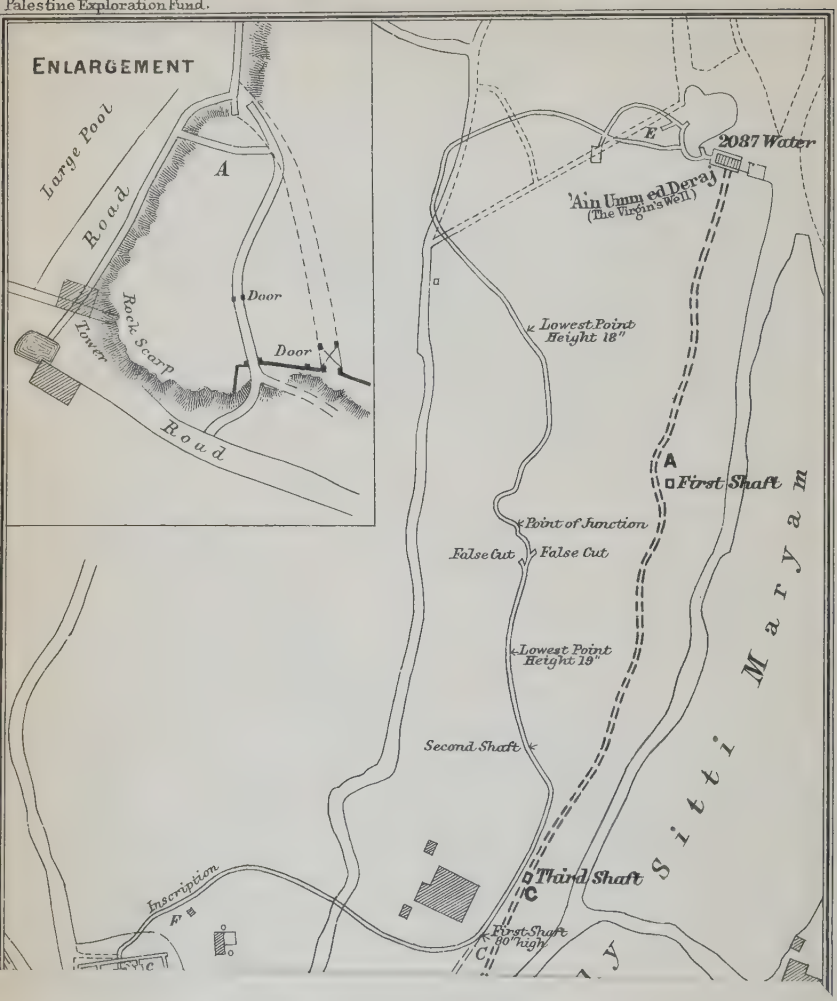
An admission on my part that the waters of the Jordan valley ever were in connection with those of the outer ocean through the Gulf of Akabah can only be made from the point of view that, during the formation of the Jordan-Arabah line of depression by the displacement of the strata along the great fault, and when the whole region was rising from beneath the waters of the ocean in Miocene times, some such connection existed for a limited period of time; but this epoch in the history of the valley was separated by a long interval from that of the present Dead Sea, even when standing at a level of 1,300 feet above its present surface. From the time that the outer waters of the ocean were dissevered from those of the Jordan-Arabah lake by the up-rise of the land, there is no evidence that there was ever any subsequent connection by means of a stream flowing down from the North into the Gulf of Akabah. The closest approximation which, according to my view, these inner and outer waters ever made towards each other is represented in the sketch-map of that whole region in page 72 of the "Geological Memoir," where a tract of ground of about 40 miles in length, and rising to 700 feet in height, is represented as intervening between their respective borders.

[1] "Mount Seir," p. 99; "Geological Memoir," p. 80.


EXCAVATIONS BY HERR SCIHCK
SECTION OF SHAFT A.
West
East
Earth
Kedron Valley
Road
Shaft.
2099
Level of Bottom of Spring
2089
2087
31 feet
Earth & broken Pottery
Rock
Small Stones
Sand & Pottery
Earth &c.
Chippings
Mud
2119
2109
2099
2089
2079
2069
2059
Feet above Mediterranean Sea
SECTION OF SHAFT B.
West
East
Shaft
Chippings
Road
Rock
Earth & Pottery
Garden
Kedron Valley
2129
2119
2109
2099
2089
2079
2069
2059
Feet above Mediterranean Sea
SECTION OF SHAFT C.
West
East
Shaft
2112
Earth
20'
Earth & Pottery
Present Aqueduct
33'
2092·3
11'0"
2088
Road
Rock
2129
2119
2109
2099
2089
2079
2069
2059
Feet above Mediterranean Sea
Scale 500
10 5 0 10 20 30 40 50 feet
G.A., del.
E.Weller.

PLAN OF THE AQUEDUCTS AND CONNECTIONS
RECENTLY DISCOVERED AND SUPPOSED CONTINUATION OF COURSE.

Palestine Exploration Fund.



THE WATERS OF SHILOAH THAT GO SOFTLY.

(Isaiah viii, 6.)

FIVE years ago, relying upon the topographical and historical accuracy of the Bible, I predicted with the utmost confidence (*Quarterly Statement*, 1884, 70, 76), that a careful search on the eastern side of Ophel would result in the discovery of an aqueduct which, in the time of Ahaz, conveyed water from the Virgin's Fount (Gihon) to the mouth of the Tyropœon valley. I added that it would be "at a level of about 2,087 feet (but on plan about 2,085), probably a foot or two broad, cut in the rock, perhaps 3 feet deep, and covered with slabs of stone;" and, further, that "as possibly the aqueduct might in some places be destroyed, when it fell into disuse on the completion of the Siloam tunnel, if no result (*i.e.*, successful result) attended the first attempt, a second or even a third ought to be made at some other part of its course." Taking Sir Charles Warren's rock-contours as my guide, I also indicated its course on a plan; and on a later plan of March 19, 1886, marked several spots for examination.

The Executive Committee very kindly took up the proposal that a search should be made, put the matter into Mr. Schick's hands, and in *Quarterly Statement*, 1886, 197, printed his report of the complete success of his excavations.

He states that he sunk three shafts. At the first (A on his plan), he found that "at a height of 2,064 feet above the sea there is no rock." The results of the second shaft, B., seem to me ambiguous. He next made a third shaft, C., hoping to strike the well-known aqueduct to Siloam, at some point where he thought the roof was not solid rock, but covered with stones. In this opinion I cannot agree. However, all ended well.

He says (1886, 199): "At 20 feet the rock was found, and to our joy, the rock-hewn channel also (*i.e.*, the conjectural, not the known one). It is 1 foot 10 inches wide, 4 feet 3 inches deep, both sides cut down perpendicularly, and the bottom round, at a level 2,088 feet above the sea. On the top of the sides there were grooves, 7 inches deep and 8½ inches broad, to take the covering slab, which was no longer in its place, and hence the conduit was full of earth."

Even after two years I must own to being extremely pleased at this discovery, especially as I had informed Mr. Besant that if the aqueduct were honestly looked for and not found, I would give up the Jerusalem controversy. This true solution of the Shiloah difficulty has taken much time and trouble. To Vitringa, as Thrupp points out ("Jerusalem," 140), we owe the correct interpretation of Isaiah viii, 6; and besides these and others, Major Conder (1883, 139; 1884, 241, 243); and Professor Sayce (1883, 211; 1884, 174), have assisted by their very objections; for in answering them (1885, 60), I saw the more clearly that I had got hold of the truth, and therefore again pressed for the search to be made.

Let me now dispose of some further objections which the former has thought good to offer, and next point out the value of this discovery.

Major Conder (1887, 104), says: "The investigations of the supposed second aqueduct to the Virgin's Pool do not seem to have led to the proof of its existence, nor do I think it at all likely that a second aqueduct would have been cut, as there could not have been any apparent use for it. . . . . Shaft C. showed a surface channel, of which there used to be many on this hill, but it is not shown to have gone to the Virgin's Pool."

Here I would ask—

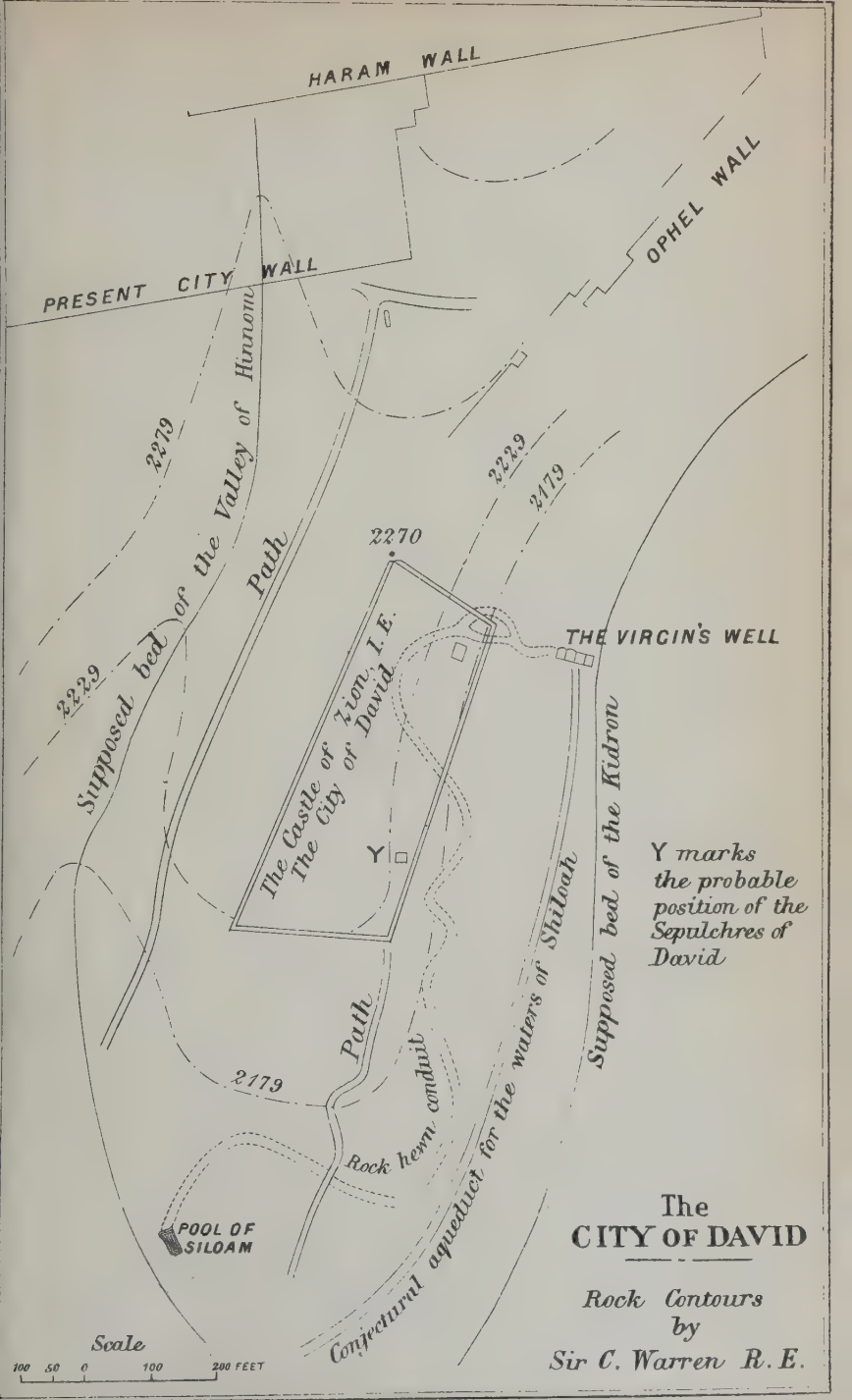
1. If the remains described above do not prove the existence of an aqueduct, what possible remains would?

2. As the present use of the present rock-hewn tunnel is to convey water from the Virgin's Pool to the Tyropœon Valley, so the past use of the newly-found aqueduct was to do the same, *before* the rock-hewn tunnel was made or ever thought of.

3. The next objection about "surface" seems to me more superficial than the aqueduct, which is buried quite 20 feet. If Major Conder means that the channel had not a roof of solid rock, I reply, Of course not, for that is just what was *not* wanted (1884, 76); but if he means it is still so near the surface (only 20 feet below!), that it cannot be as ancient as the time of Ahaz, then I must ask why would he attribute (1887, 106; 1884, 26) to Hezekiah the aqueduct named in *his very next paragraph*, on p. 104, 1887. Is that aqueduct 20 feet below the surface? And if so, how much more depth is required for Ahaz than for Hezekiah. To me, 20 feet seems depth enough of soil for any antiquity in this part of Ophel?

But, before dismissing his aqueduct, I would ask, would it not be absurd in Hezekiah first to stop the upper outlet of Gihon (Virgin's Fount), and to bring the waters, with immense labour, beyond the reach of the enemy, through the Ophel Hill to the Pool of Siloam, and then to convey them onwards, *outside* the walls, and so *not beyond* his reach, in a *surface* channel (his is such as much as mine) covered with slabs, having slits (1882, 130) here and there giving access to the waters—a channel, be it noted, running east and west according to Major Conder's plan (1884, 21), but north and south on Mr. Schick's (1886, 199). In other words, Major Conder makes Hezekiah's object to have been to prevent Sennacherib tasting the waters of Gihon *merely before* they reached Siloam; after that he might drink *ad libitum*. This absurdity inevitably follows his interpretation of 2 Chron. xxxii, 30, in which he makes the city of David to be the Upper City on the south-western hill.

4. While the aqueduct has not been *actually* traced to the Virgin's Fount, it must, like the Siloam tunnel, have led from it, as "there is nothing to lead us to suppose that any other supply of living water existed at a former period" at Jerusalem (Conder's "Handbook," 334). I hope, however, these objections will lead the Committee to trace the conduit to its end in both directions.



The CITY OF DAVID

Rock Contours by Sir C. Warren R.E.

LINDSELL & ANDREW, LITH 81 CHANCERY LANE, W.C.

The discovery of this aqueduct seems to be most valuable, because—

1. It gives us a glimpse of the wonderful accuracy of the sacred records, since a brief notice in Isaiah has enabled us to recover an aqueduct disused for 2,600 years, whose very existence was denied by historical critics.

2. The terms Shiloah, Siloah, and Siloam can now, without any difficulty whatever, be applied to one spot, at the south of Ophel.

3. Once more Ophel, west of the Virgin's Fount, is found to be the site of the city of David, for the waters of Shiloah (*i.e.*, aqueduct) must, as Thrupp pointed out, have flowed from the city of David, and this (Schick's) aqueduct can only have led from the very same source as the Siloam tunnel does at the present day, viz., from the Virgin's Fount, *i.e.*, Gihon (2 Chron. xxxii, 30).

4. There is no longer any room whatever for doubt as to the date of the Siloam tunnel. Every difficulty has been removed. It was certainly Hezekiah's work (1883, 106). The same may also be said of the inscription.

5. In my opinion Schick's aqueduct is to be attributed to Solomon.

6. By this discovery an impetus ought to be given to excavation work at Jerusalem.

We have not now to dig at a venture. Calculations may be made to a nicety beforehand. An unknown quantity, too, has been eliminated from the problem of discovering the sepulchres of David, or, rather, its value has been found. Readers of these pages may remember how uncertainty as to the position of "the Pool of Siloam" (1883, 155) and "the pool that was made" has more than once marred my conjectures as to the approximate position of David's tomb on the part south of the Haram area.

Now, however, a doubtful point *finally settled*, gives another *fixed and known point* from which to make a further advance towards solving the great question of the precise position of the Royal Sepulchres.

Encouraged, therefore, by the successful find of "the waters of Shiloah," I would again put before the Executive Committee of the Palestine Exploration Fund a proposal that a search should be made for the sepulchres of David. I do not ask them to believe me, and I cannot in this matter speak, as in the former case, with "the utmost confidence" of succeeding; but, after two years' reflection, I see no change that I should wish to make in the plan and explanation given in *Quarterly Statement*, 1886, 33. A search (on a line east and west) on the eastern side of Ophel must, in my opinion, reveal traces of the city wall, and a further search based on this would, I believe, be rewarded by most astonishing results, viz., the discovery of ancient tombs which must be royal.

Perseverance, however, and money, too, will probably be needed to recover the sepulchre where David's dust "rests in hope" (if Matt. xxvii, 53, admits of it), the magnificent catacombs where Solomon "lies in his glory," the loculus (bed) of Asa, "filled with divers kinds of spices"—in short, the *one* intact monument of the kings of Judah. I would not for

a moment ignore any proposed *bonâ fide* site for the sepulchres of David, adverse to my own. It is however needless to consider Mr. St. Clair's (1888, 49, 288) site with all the details of his plan, until he draws his southern wall, not on the line of the present wall, but so as (1) to take in the towers discovered by Mr. Maudslay at the south-west corner of the upper city, (2) to pass close to the Virgin's Fount, and (3) to be sufficiently near to the Pool of Siloam as to defend it. According to Mr. St. Clair's plan, the elaborate works connected with the two latter had nothing to do with Jerusalem, and were useless. This is incredible.

W. F. Birch.

October 25th, 1888.

THE VALLEYS AND WATERS OF JERUSALEM.

The Hebrew language furnishes a most useful key to the topography of Jerusalem, inasmuch as it possesses different words to describe valleys of different kinds, and also invariably applies the same word to the same valley. The translators of the Bible apparently overlooked this peculiarity; but it is strange that the Revisers should have strayed still further by translating identically the same words in one place "the king's *dale*," and in another "the king's *vale*."

Thus the reader of the English translation, by being deprived of the topographical light which the original contains, is led blindfold among the three valleys of Jerusalem, with two chances to one of his mistaking where he is.

At the suggestion of one of the Executive Committee, I propose to lay before the reader a simple statement as to these valleys and the passages in the Bible where they are named.

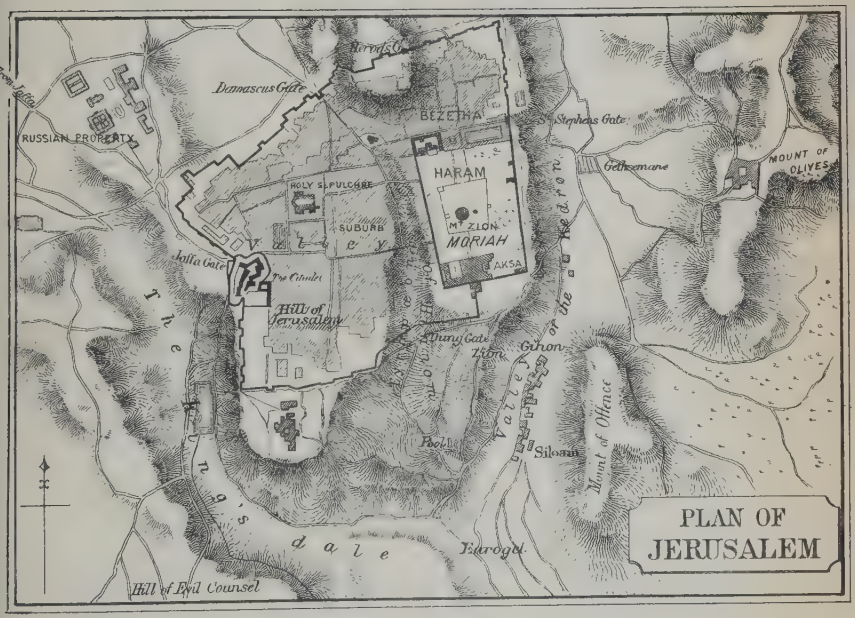
To those who will condescend to use this key instead of their own fancy, Jerusalem topography will lose most of its difficulties, and points which may still escape me may become clear to others.

Jerusalem is bounded on the east by a valley running from north to south. This is universally admitted to be that named in the Bible as the brook Kidron.

On the west and south it is bounded by an L-shaped valley, joining the former at its southern end, whence the two form one valley leading to the Dead Sea.

The space enclosed between these two, forming the site of Jerusalem, is further divided by a central bifurcated or Y-shaped valley, of which the lowest limb joins the point of contact of the two former valleys, while the left branch of the Y runs almost east and west, and the right branch northwards. Further, Jerusalem is divided in such a way that the area to the right of the Y is only about one-quarter of the whole.

The first, or eastern, valley is in Hebrew called *Nachal*, or the brook its full title being the brook Kidron.


Damascus Gate
BEZETHA
St. Stephens Gate
RUSSIAN PROPERTY
HARAM
Gethsemane
MOUNT OF OLIVES
HOLY SEPULCHRE
SUBURB
M. ZION
MORIAH
AKSA
Jaffa Gate
Hill of Jerusalem
Valley of the Tyropoeon
Dung Gate
Zion
Gihon
Valley of the Kidron
Pool
Siloam
Mount of Offence
The Valley of Hinnom's dale
Hill of Evil Counsel
PLAN OF JERUSALEM

The second, or south-western, valley is called *Emek*, or the Dale, with various additions.

The third valley (*i.e.*, the left and lowest limb of the Y) is called *Ge*, or the valley of Hinnom, the last word, Hinnom, being very seldom omitted.

If the reader asks, as he has a right to ask, "Do all writers on Jerusalem believe all this about the valleys?" then I must reply, "Certainly not."

Theories have been formed and advocated in ignorance of the above-named *key*, and, as General Gordon rightly observed (*Quarterly Statement*, 1885, 81), "A man, under his own name, cannot go right-about-face all at once." My experience is that he will hardly go at all sooner or later. I have explained in *Quarterly Statement* (1878, 178; 1882, 56) how I got into the light, or rather how light got into me, by a mere accident, and how the Jerusalem fog which still envelops so many lifted and the great outlines of Jerusalem burst upon my view in wonderful distinctness, as soon as ever I admitted that Nachal = eastern valley, Ge = central valley, Emek = south-western valley. My faith in this key was confirmed beyond a shadow of a doubt when, by the use of it, I found that Jer. xxi, 13, 14, "I am against thee, O inhabitant of the valley [emek] and of the rock of the plain [mishor], saith the Lord: ye which say who shall come down against us," had *nothing whatever to do with Jerusalem*, as hitherto universally supposed.

The people of Jerusalem did *not* live in the *emek*, and the word *mishor* is technically applied to the upland downs on the *east* side of the Jordan. The very expression used by Rabbath-Ammon in Jer. xlix, 3, 4, "Who shall come unto me," answering so closely to "Who shall come down against us," is enough to show to the unprepossessed reader that the capital of the Ammonites is addressed in Jer. xxi, 13, just as Jerusalem is in the twelfth verse; while Ezek. xxi, 20, throws further light on the question.

Here, again, I must confess with sadness that writers, learned and unlearned alike, still go on in error, preferring to do violence to Hebrew usage rather than to revise what they have once written (1878, 189; 1882, 59). I must also add that I first learned from Mr. Schick (1884, 185) that I had been forestalled by Schwarz in perceiving that the central, *i.e.*, the Tyropœon valley, was the valley (*ge*) of Hinnom. Possibly his discovery was rejected by others because he went on to say that the south-western valley, *emek* (still, I grieve to say, commonly taken to be the *ge*, or valley of Hinnom) was the valley of Rephaim. Anybody could see that it was *not*, and that the Philistines could never have *spread* themselves in such a small place (2 Sam. v, 18, 22; xxiii, 13).

Now as to the valleys.

Nachal, or the Brook Kidron.

2 Sam. xv, 23. The king passed over the brook Kidron.

St. John, xviii, 1. Jesus went forth with his disciples over the brook Kidron.

1 Kings, ii, 37. Passest over the brook Kidron.

1 Kings, xv, 13. Asa burnt her image at the brook Kidron.

2 Kings, xxiii, 4. Josiah burned them without Jerusalem in the fields of Kidron.

2 Kings, xxiii, 6. Unto the brook Kidron and at the brook Kidron.

2 Kings, xxiii, 12. Cast the dust of them into the brook Kidron.

Jer. xxxi, 40. All the fields unto the brook Kidron.

Sometimes Kidron is omitted, and *Nachal* only used.

Nehemiah (ii, 14, 15), after passing the King's pool, says, "Then went I up in the night by the brook."

2 Chron. xxxiii, 14, R. V. After this Manasseh built an outer wall to the city of David on the west side of Gihon, in the valley (*nachal, i.e.*, brook).

Here the original contained light, while a vague translation has produced darkness, in which writers on Jerusalem are still groping. This verse by itself showed that Gihon was on the east of Jerusalem, and the city of David close to it, on the west side of Gihon; but because the A. V. gave *valley* instead of *brook* (and the R. V. does just the same), Dr. Robinson was led astray, and Sir Charles Warren triumphantly claims that his north-westerly site for Zion "is the only site which will render intelligible" this verse ("Temple," 35). Put *brook* for *valley*, and the verse is seen at once to be diametrically opposed to his view. He has long admitted that the Book of Nehemiah seems to place the city of David on Ophel, but here we have his favourite passage in Chronicles doing the very same thing. It would have been most unsatisfactory if Nehemiah had not been consistent with Chronicles.

On the invasion of Sennacherib, Hezekiah (2 Chron. xxxii, 4) gathered much people together, and they stopped all the fountains, and *the brook* (*nachal*) that flowed through the midst of the land, saying, why should the kings of Assyria come and find much water. Here the A. V. is better than the R. V., for the former gives the marginal reading, "overflowed."

What then was *the brook that overflowed?* Heavy rain would make a stream in any valley. But in this case why stop only *one?* Now the Virgin's Fount in the Kidron valley is partly an intermittent spring. It seemed, therefore, to me ten years ago (*Quarterly Statement*, 1878, 181) that this spring was referred to, since it is in the *nachal*, and *overflows* at irregular intervals. The recent discovery of Schick's aqueduct, which carried these waters to the mouth of the Tyropœon valley, showed, however that the waters from Gihon, even in the time of Ahaz, were not allowed to overflow down the Kidron, while the flowing along the aqueduct certainly did not answer to flowing "through the midst of the land."

We (writers) have been for fifty years needlessly indulging in conjectures when all along any ragged urchin at Jerusalem could answer off-hand the question, "Where is the brook that overflows through the midst of the land?" Dr. Robinson thought it flowed down the south-

western valley; Sir C. Warren, writing of the central valley, exclaims ("Underground Jerusalem," 70, 322, 331), "How tantalising to have found the *brook*, but to be debarred pursuing it up to its source!" Nevertheless the brook has been overflowing almost every year. Dr. Robinson notes it and Sir C. Warren saw it, and I also; and yet no one has recognised it. What is more, its periodical flow is actually tabulated in these very pages (*see* 1883, 33), and as no one should overlook it, it is headed "TABLE IX. The overflow of Beer Ayûb." Yet it has taken me ten years to find it out and this while the "Land and Book," 656, etc., and "Jerusalem Recovered," 258, have brought closely together the mention of the brook that overflowed, and the overflow of Joab's well and the long tunnel, so that one ought long ago to have perceived the connection between them.

Major Conder says, "The rising of the waters is held as a feast by the inhabitants of Jerusalem, who may be seen walking beside the water or sitting in the valley in numbers on a bright winter day when the water is flowing. Men, women, and children here picnic all day" ("Memoirs, Jerusalem," 371, and "Land and Book," 658).

After heavy rains the water from the lower strata of rock finds an outlet up the shaft of the well. I do not know the age of the well, and, therefore, do not say it existed in the time of Hezekiah. Sir Charles Warren, however, discovered one entrance to three staircases a little north of the well—one of them leading to a semi-natural cistern in the rock, where a natural cleft was also visible. This staircase had evidently been cut into at a later date, but in its original form it had once been built up by a cross wall, and at the bottom of the wall a hole or duct was left $6\frac{3}{8}$ by 4 inches, and on the northern side a stone plug to fit and 12 inches long, was found in it. Why? here is the *very plug* Hezekiah put in (I don't mean with his own hand) when Sennacherib invaded Judah. Talk of the Bible not bearing historical criticism! It is the critic who cannot bear criticism. Afterwards the *plug* was no longer needed, when the 1,800 feet aqueduct from the cistern was made down the Kidron.

It seems to me that the above staircases must have been made by the Jebusites, and that this source of water is to be identified with En-rogel (Josh. xv, 7, xviii, 16), just as in Gen. xxiv, 11, 20, mention is made of a *well* (*beer*), and of Rebekah going *down* to the *spring* (*ain*. 16, 13). What an excellent hiding-place Jonathan and Ahimaaz (2 Sam. xvii, 17) must have had here in these staircases and cleft, the reader may learn for himself from Sir Charles Warren's Letters, pp. 140, 152, and the "Jerusalem Memoirs," 372.

Ge, or the Valley of Hinnom.

Josh. xv, 8 (from En-rogel). The border went up by the valley of the son of Hinnom.

Josh. xviii, 16. The border went down to the uttermost part of the mountain that lieth before the valley of the son of Hinnom, which is in

the vale of Rephaim northward; and it went down to the valley of Hinnom, to the side of the Jebusite southward, and went down to En-rogel.

Neh. xi, 30. From Beersheba unto the valley of Hinnom.

2 Chron. xxviii, 3. Ahaz burnt incense in the valley of the son of Hinnom.

2 Chron. xxxiii, 6. Pass through the fire in the valley of the son of Hinnom.

2 Kings xxiii, 10. Josiah defiled Topheth, which is in the valley of the children of Hinnom.

Jer. xxxii 35. High places of Baal, which are in the valley of the son of Hinnom.

Jer. vii, 31, 32. Topheth, which is in the valley of the son of Hinnom.—Behold the days come, that it shall no more be called Topheth, nor The valley of the son of Hinnom, but The valley of Slaughter, for they shall bury in Topheth till [or because] there shall be no place to bury.

Also xix, 6.

Jer. xix, 2. Go forth unto the valley of the son of Hinnom, which is by the entry of the gate Harsith (Margin, the gate of Potsherds).

The A. V. unfortunately renders Harsith by east. An *east* gate at Jerusalem must lead to the *nachal* (brook Kidron), and as the valley (*ge*) of Hinnom is said to be near the above wrongly styled *east* gate, Sir Charles Warren, taking the *nachal* and *ge* to be one and the same, has in a mistake of the Authorised Version, found support for his wrong position of Zion, the city of David (1870, 344). This is much to be regretted, as it is hard to go right-about-face.

Occasionally the valley of Hinnom is simply described as the valley (*ge*), and serves as a title for a gate near it.

Neh. ii, 13. I went out by night by the valley gate.

Neh. iii, 13. The valley gate repaired Hanun, &c.

2 Chron. xxvi, 9. Uzziah built towers at the valley gate.

From the valley (*ge*) we have in the N. T. the term Gehenna as a place of torment.

The lowest limb of the Y is the Tyropœon valley of Josephus, dividing the upper city on the hill (*gibeah*) of Jerusalem (Is. x, 32, xxxi, 4) on the west from the lower city or Acra on Ophel (so called) on the east. On part of the latter stood Zion, the city of David, while the high part of the hill on the north was called the Mount (*har*) of Zion (Is. x, 32, xxxi, 4), Mount Moriah, and later, the Mount of the House (2 Chron. xxxiii, 15). At times, however, in the Psalms and Prophets, Mount Zion, Zion, and Jerusalem seem to be used as equivalent terms for the whole city.

Emek—The Dale.

Gen. xiv, 17, R. V. The king of Sodom went out to meet him (Abram) at the vale of Shaveh (the same is the King's *Vale*). And Melchizedek, &c.

2 Sam. xviii, 18. Absalom in his lifetime had taken and reared up for himself the pillar which is in the king's *dale*.

This gratuitous variation in R. V. is reprehensible.

Josephus, with better judgment, says that Melchizedek was king of Jerusalem, and that Absalom's pillar was two furlongs from Jerusalem. It seems to me absurd to think either that these two valleys are not identical, or that Absalom had prepared his tomb on the east side of the Jordan, or near Shechem, where some learned people wrongly think Abram met Melchizedek. Abram's natural road was, as at present, past Jerusalem, and that city was the obvious place at which the king of Sodom would meet him.

Jer. xxxi, 40. The whole valley of the dead bodies and of the ashes and all the fields unto the brook Kidron.

The valley thus described has been taken to be the south-western valley, commonly called the valley (*ge*) of Hinnom. When, however, I took the central valley to be the valley (*ge*) of Hinnom, and then came to examine this passage in the Hebrew, and found that as this south-western valley ought not to be called *ge*, so actually it *was not called ge but emek*, I saw how many difficulties ignorance makes for itself, and that while the original is very distinct and precise, the laxity of translations has produced confusion and difficulties which once seemed insuperable.

Joel, iii, 2, 12. I will bring them down into the valley of Jehoshaphat . . . . Come up to the valley of Jehoshaphat (Margin, the Lord judgeth).

If the reference here is to any valley at Jerusalem, it is certainly *not* to the *eastern* valley or *nachal*, commonly but wrongly named the valley of Jehoshaphat. The use of *emek* shows that only the south-western valley can be referred to. Thrupp ("Jerusalem" 214) says, "the allusion in this chapter to the winepresses points to where the king's winepresses stood (south-east of Jerusalem), and the metaphor of the harvest conducts us further westward to the cornfields of the Plain of the Rephaim." Hence he concludes that the ravine of the Kidron cannot be exclusively intended. I may, however, observe that "the winepresses" and "the cornfields" are exactly the eastern and western limits of our *emek*.

Jer. xxi, 13. Has been shown above not to refer to Jerusalem.

Isaiah, xxii, 1-7. Possibly does not refer to Jerusalem ("Spk. Comment."). Our key, however, passes smoothly the two wards "valley (*ge*) of vision," and "thy choicest valleys (*emek*)," *e.g.*, the king's dale and the valley (*emek*) of Rephaim.

In support of the south-western valley being the king's dale (*emek*) I should like to point out that close to its eastern extremity, where it joins the nachal, we have the *king's* winepresses (Zech. xiv, 10), the king's pool (Neh. ii, 14) and the king's garden (Neh. iii, 15; 2 Kings, xxv, 4; Jer. xxxix, 4; lii, 7).

Ain—Spring.

As to the waters of Jerusalem little is here to be said. Evidently on the west there was a spring called in Neh. ii, 13, "the dragon's well" (really spring, *ain*) answering probably to the serpents' pool of Josephus (Wars, v, iii, 2). This *ain* is no longer visible.

The Virgin's Fount is undoubtedly Gihon (1 Kings i, 33, 38, 45 ; 2 Chron. xxxii, 30 ; xxxiii, 14). Major Conder has done good service by strenuously maintaining this (1883, 106).

I regret, however, that he feels compelled by M. Ganneau's discovery of the Arabic *Ez Zehwele*, to maintain that En-rogel is identical with Gihon. Enrogel was certainly the same as or near Joab's well. The argument that the last named is a *beer* (well) not an *ain* (spring), hardly proves anything ; for Jacob's well in John iv, 6, 11, is called both πηγή and φρέαρ. I have observed already that in Gen. xxiv, in Rebekah's story, *beer* and *ain* are both mentioned twice, and the water supply obtained by means of the staircase near Joab's well would certainly be called an *ain* (spring). Further, it is absurd to suppose (1) that Adonijah would hold his revolutionary feast under the very windows of the royal palace on Ophel, and (2) if he had, that David would ever send Solomon to Gihon, almost into the hands of his enemies (M. Ganneau gives the distance between Zehwele and the Virgin's Fount as about 60 metres = 66 yards, 1870, 252), and (3) that being so near to Gihon, Adonijah and the rest of the conspirators should know nothing of what had gone on (1 Kings i, 41) seventy yards off, until Jonathan rushed in to tell them.

Of Arabic, happily, I am ignorant, and so am unmoved by the merits of *Zehwele ;* but I do know that for the *stone* of Zoheleth, the Bible uses *eben*, and I cannot find there a single instance in which it is applied to a *cliff*, such as *Zehwele* is attached to ; while I can give many instances in which it means a moveable stone, which *Zehwele* certainly is not. Perhaps some friend of this Arabic word will produce an instance from the Bible, of *eben* meaning a *cliff*.

Lastly, "The Land and the Book," page 659, points out the fittest place and time for Adonijah's conspiracy, viz., near Joab's well, when *the brook* was overflowing, so that the holiday makers there would find themselves entrapped into the rebellion ere they were aware of it, like the two hundred men who went with Absalom to Hebron in their simplicity. (2 Sam. xv, 11).

W. F. Birch.

EN-ROGEL, AND THE BROOK THAT OVERFLOWED.

The Position.

The boundary line between Judah and Benjamin fixes the position of En-rogel somewhere towards the south-east of Jerusalem.

Three sites for it have been proposed, viz. (1) the Virgin's Fount, *i.e.*, Gihon; (2) the Pool of Siloam; (3) Joab's Well.

It seems to me that En-rogel cannot be Gihon, because (*a*) two different names can hardly be applied to the same fountain in one story (1 Kings i, 9, 33, 38, 45); (*b*) it is incredible, and not consistent with the sacred narrative, that Solomon was anointed within a hundred yards of Adonijah and his supporters—just where David would *not* send him; (*c*) the *cliff* of Zahweileh certainly does not answer to the *stone* (*eben*, a moveable stone) of Zoheleth. Major Conder, taking the identification to be true, proposes (*Quarterly Statement*, 1885, 20) that En-rogel may mean "the spring of the channel," and would derive the name from "the famous rock-cut channel leading from the back of the cave in which the spring rises." A fatal objection, however, is made by H. B. S. W. (184), who observes "that *all* the passages in which the name occurs, relate to a time antecedent to the earliest date hitherto assigned to the rock-cut channel, and two of them mention the name En-rogel as existing *in the time of Joshua*." I must add that Major Conder himself attributes the famous channel to Hezekiah ("Handbook," 339), so that on this point he is divided against himself; and though since 1878 (*Quarterly Statement*, 130, 184) I have maintained that the Jebusites made the channel (it is part of the gutter up which Joab climbed—2 Sam. v, 8; 1 Chron. xi, 6), I cannot admit this site for En-rogel, even in favour of my theory.

2. H. B. S. W.'s (1885, 59) proposal to identify En-rogel with the pool of Siloam falls before his objection above; for no one, so far as I know, has assigned the Pool of Siloam to so early a date as the time of Joshua.

3. The great objections made by Major Conder (1885, 20) against identifying En-rogel with (Bîr Eyûb) Joab's Well have been (1) that it is too far from the cliff of Zahweileh, and (2) that it is not a spring (*ain*) at all. I have pointed out above that (1) is really no objection at all; and (2) is not conclusive, because Jacob's Well at Sychar is called both a spring (πηγή) and a well (φρέαρ) in St. John iv. Further, in Gen. xvi, 7, 14, the fountain (*ain*) in the way to Shur is identical with the well, Beer-lahai-roi. Again, in Gen. xxiv, 11, 13, 16, 20, 43, 45, we have both *ain* and *beer*, applied to the same source of water. Further, the *well* of Sirah (2 Sam. iii, 26) is identified by Major Conder ("Tent Work," vol. ii, 86) with the present *ain* Sârah. Thus, a spring reached by cutting the rock may, apparently, in the Bible, be called either *ain* or *beer*. To me Joab's Well seems undoubtedly to answer to the required position of En-rogel, but yet not itself to be actually En-rogel, and this brings us to a very interesting subject.

The Story.

Eleven years ago I pointed out (1878, 130) that there must have been a very clever man among the ancient Jebusites. Whether he was Melchizedec or not is uncertain ; at any rate, water was his specialty. I have told how, by the contrivance of "the gutter," he secured for his city an unfailing supply of water, and so enabled Zion, the castle of the Jebusites, to bid defiance to all Israel, until Joab's daring, in conjunction with Araunah's treachery, transferred the impregnable fortress into David's hands. Another benefit which this same Jebusite (I believe) conferred upon his country was the making of En-rogel.

It is probable that in pre-historic times water used, after heavy rains, to issue from the ground near Joab's Well, just as it does now by means of the well, and to flow in a voluminous stream down the valley towards the Dead Sea.

When, in after times, but before the Israelite invasion, the Jebusites found the supply from Gihon (Virgin's Fount) insufficient for their wants. this father of civil engineers prospected for water in the valley (*nachal*, or brook) near the present site of Joab's Well. Intending his countrymen to be able in stormy times to conceal from their enemies the spring he had resolved to find, he cut in the rock, about 75 feet north of the well, the entrance to a staircase discovered by Sir Charles Warren, which, after descending 6 feet to the west, divides into a northern and a southern branch. The northern staircase soon divides in two others ; neither of these last two enabled our Jebusite to find water, and therefore were abandoned, it may be, when the southern staircase gave indications that the excavators were reaching water. A grand day, indeed, it must have been for that primitive civil engineer, when he broke into the grotto or subterranean cistern marked west of Joab's Well ; and if nature had never hereabouts forced for its waters an outlet to the surface, tremendous must have been the excitement in "the torpid little town of Jebus," when tidings came that a strong stream of water was pouring forth from En-rogel ; in other words, that "the brook was overflowing in the midst of the land."

Consciously or unconsciously, some 3,400 years ago, or more, our Jebusite had constructed a periodical Artesian well, and thereby (unless he was anticipated by nature) endowed his city in perpetuity with all but an annual treat of a babbling brook in "the prettiest and most fertile spot around Jerusalem."

If it is allowable to give a Hebrew derivation to the name of a Jebusite spring (though possibly the later name is an equivalent for the older one, just as we have *shaveh* and *emek*), then I would interprete En-rogel as meaning *the spring of searching out*, *i.e.*, the spring that was found by searching out, just as Isaac named one of his wells *Esek*, because they contended with him.

Useful, however, as En-rogel proved to the Jebusites, it was very inconvenient for their fair Rebekahs to have to go down for water through

the long dark staircase and passage ; accordingly from the surface of the valley (or, if the grotto is under the hill, from a cave, like a tomb, in its side) a shaft was excavated to the roof of the grotto, through which (shaft) their vessels could be let down by a cord into the cistern below.

Centuries rolled on, and if the water had ever naturally issued from the surface near En-rogel, the fact was wholly forgotton. The only overflow that the Hebrews who now held Jerusalem ever witnessed was the periodical rushing of the waters up the staircase of En-rogel.

The Bible mentions this fountain in connection with two critical events in the life of David. In the rebellion of Absalom, Jonathan and Ahimaaz remained lurking in or near these staircases ; and afterwards, "by the stone of Zoheleth, which is beside En-rogel," the rebellious Adonijah gave his great feast, doubtless during the overflow of the brook.

Joab's Well itself may have been dug in the reign of Solomon, and deepened at a later date. It was certainly made *after* En-rogel. Possibly the age of its construction may be ascertained from the character of its masonry.

On Sennacherib's invasion "much people was gathered together who stopped all the fountains and the brook that overflowed through (or in) the midst of the land." Now, at last, Hezekiah reaped the fruit of the Jebusite's forethought. Covering up the entrance to Gihon he was able himself from within the city of Jerusalem to draw its waters by means of the gutter. Similarly it was easy to conceal all traces of En-rogel ; but to stop "the brook that overflowed" proved in the end to be a work of extreme difficulty and extraordinary magnitude. At first, at a distance of 44 feet from the grotto (or cistern), he blocked up the rock-cut passage by "a masonry wall, 3 feet thick, and composed of cut stones set in a hard black mortar, apparently mixed with oil. At the bottom a hole or duct was left, $6\frac{3}{4}$ inches by 4 inches, and on the northern side a stone plug to fit, and 12 inches long, was found in it" (by Sir Charles Warren in 1870 ; *see* Letters, pp. 141, 153).

Probably at the same time Hezekiah closed the shaft in the roof of the grotto with the "white stone," observed by this successful explorer (Letters, p. 141). All this was easy enough ; but when the heavy rains came on, it would seem that the waters still issued from the surface, escaping either through some natural fissure in the rock below the soil, or because the shaft above the grotto or the staircase was not water-tight. The blocking up of the staircase (or rather its continuation to the grotto) by a *second* wall, seems to imply that suspicion lighted on the last-named passage. However this might be, the attempt was of no use. The brook still continued, as of old, to overflow. Yet Hezekiah and his people were not easily to be thwarted. If the brook would flow, it should certainly not *overflow*.

At an immense expenditure of labour a spacious aqueduct (6 feet high and from 3 feet 6 inches to 4 feet broad) was cut under the western

side of the Kidron valley, starting from the grotto (which was practically the source of the waters), and extending at least 1,800 feet down the ravine.

[To follow this to its end is a work worthy of the Fund and its supporters.]

Now, at last, the brook was stopped. Buried, as it was, 40 or 50 feet out of sight, and beyond hearing the Assyrian could never have found it.

A further attempt seems to have been made to continue this tunnel (or aqueduct) on the same scale northwards. Apparently the staircase was used for carrying out the chippings, but why the last 86 feet of it (*i.e.*, of the staircase which here is really a passage with a slight fall) were not utilised in this extension is to me at present unintelligible. Operations were began at a point 86 feet from the grotto, and after lowering the floor about 9 feet, a new tunnel was continued north for 148 feet, generally about 3 feet 7 inches wide, and 6 feet high, and then the work was abandoned.

Still, from the southern end of this 148 feet length, a passage was cut to the grotto, apparently to enable the water trickling through into the 148-foot tunnel to flow into the grotto.

The smaller dimensions ("it is only about 3½ feet high" apparently. Letters, p. 142) and irregular course of this connecting link seem to indicate that it was made without much care. At the point of junction (86 feet from the grotto) the old staircase has partly been cut away by this later work, so that here the roof of the passage is 15 feet high. From this point the *link* runs directly under the older passage, and comes out into the grotto, 9 feet below the other and 6 feet to the west of it.

If Joab's Well had been already dug, it too must have been stopped by Hezekiah. If it was not already made, then the excavating of the great aqueduct must have deprived the people of Jerusalem of their greatest treat. After Sennacherib's departure, they must have looked back with many regrets to the happy days when they used to disport themselves among the trees by the banks of the overflowing brook. And never afterwards, until the exit from the grotto was blocked up (which the presence of some large stones in the tunnel and at the bottom of the cistern or grotto seems to indicate was done), or until Joab's Well was either made or reopened, did the lower valley of the Kidron again present the bright and festive scene which must probably have been of almost yearly occurrence since Jerusalem was first inhabited, and certainly since the day that the clever Jebusite presented to his city the famous En-rogel.

The Proof.

The more congenial task now awaits me of presenting to the critics the proof that my topographical statements are correct.

In "Jerusalem Recovered," 261, Sir Charles Warren writes :—"This tunnel, as we have now examined it, extends from near Bir Eyûb to a point 1,800 feet down the Kedron Valley. It has been judiciously cut

under one side (the west side) of the valley, so that though it is from 70 to 90 feet under the surface of the rock, yet the staircases being commenced to the east (nearer the bottom of the valley), have not to descend by more than 40 to 50 feet. In the 1,800 feet we have cleared out, seven staircases have been exposed ; they are about 3 feet wide, and descend at an angle of 35°. At the bottom of some of the staircases the aqueduct is deepened a little, so as to form a shallow pool."

As, therefore, work might have been begun at all these staircases at once, the time spent in making the aqueduct need not have been much longer than that required to make the tunnel between the two staircases most distant one from the other. Still, however quickly executed, the undertaking, by its very magnitude, witnesses to the extreme importance attached to it.

Had it been primarily made as a means of egress from and ingress to the city, the work would have been begun from the city so as to be available for use, as far as it was finished. If such could have been its object, then, as we find it, it would be nothing but a monument of wasted industry and unreflecting folly.

It is clear, however, that it was intended for an aqueduct. In proof of this we have "the little pools at the bottom of some of the staircases," and water in old time must obviously have flowed along it, as it is connected both with a cistern holding water at the present day and also with a passage stopped with a plug. Above all, its great size shows that it was made to admit of a large volume of water flowing along it, and such a flow actually takes place along it at the present day.

Its depth below the nearest surface, "40 to 50 feet," shows that the object was to conceal the waters from an enemy outside the city until they could be conveyed to some point where he could not reach them, probably where they would sink into the ground and so disappear.

We know from 2 Chron. xxxii, 3, that Hezekiah "took counsel to stop the waters of the fountains which were without the city, and that much people was gathered together, who stopped all the fountains and *the* brook that overflowed through the midst of the land." Be it observed that *only ONE brook, the* brook, is here mentioned.

With the rock, near Joab's Well, once pierced either by nature or by the shaft of the well, or by the rock-cut staircase north of it, the water after heavy rains would inevitably issue forth in *a great stream.* As it would have been folly in Hezekiah to stop a brook elsewhere and leave this one still overflowing, and as he is only said to have stopped *the* brook (*i.e.*, one, not more), it is obvious that the brook that he stopped must have been the one rising at or near Joab's Well.

That there used to be such an overflow of water *hereabouts in Hezekiah's time* is clear, because (1) En-rogel was already in existence, being mentioned in the time of Joshua ; (2) It was not at Gihon; and because, (3) as the boundary line from En-rogel went *up* the valley of Hinnom En-rogel was obviously towards the south-east of Jerusalem.

We have then the following interesting points established :—

1. The *Ain* (spring) in the word En-rogel proves that at or near this spot there was a source and supply of *living waters.*

2. The *living waters* prove that the rock was (porous or) pierced by nature or art, so that the waters could pass through.

3. The rock having been thus pierced proves that there would be an overflowing brook at times then as now.

4. The great depth and size of the tunnel prove that it was intended to hide and convey away from the enemy a large volume of water.

As Hezekiah is distinctly asserted to have stopped "the overflowing brook," and no one else apparently had both the necessity and ability for doing so, the conclusion is inevitable that Hzekiah made the long aqueduct owing to the invasion of Sennacherib, or, in other words, that 2 Chron. xxxii, 4, must refer to this aqueduct.

The tunnel is continued on the north side of the cistern or grotto, on about the same level as it is on the south side, and cuts into a passage leading in one direction up to the surface, and in the opposite direction back to the cistern, which (cistern) the passage named reaches at a level nine feet higher than that of the aqueduct.

As this higher passage is now blocked up by a wall containing *the plug*, which (plug) would be useless when the continuation of the aqueduct had been made to cut into the upper passage (for then the water could flow along the lower passage, and, as it were, take the plug in the rear), it is evident that the wall was plugged :—

(1) Before "the connecting link," or lower passage, was made.

(2) Before the long aqueduct was made ; for then the waters could no longer rise so high as the plug, as this is 12 or 13 feet above the bottom of the outlet aqueduct.

Therefore the staircase (leading down to the plug) being the only outlet to waters flowing along the plugged passage, was also made before the long aqueduct.

But the putting in of the plug could only have been done to prevent the water rising up the staircase. Therefore in the plug we have evidence of an earlier attempt to stop the brook before ever the long aqueduct or tunnel was made.

The presence of a *plug* instead of a wall, perfectly solid throughout, seems to me to show that the object was to keep the brook from overflowing, *only for a time*, as long as it might be desired, and not to *compel* (if the levels required it) the waters when they overflowed, to do so through the shaft in the roof of the grotto. If the top of the shaft is lower than the head of the staircase, of course the waters would issue from the former naturally. Anyhow, it is clear the plug was not put in for any object connected with the shaft.

As the staircase would practically be useless for getting water after Joab's Well was made, I conclude that the staircase was made before the well ; for Joab's Well once made, could never have been both stopped and forgotten and its site lost before Sennacherib's invasion, and at that time it has been shown that the staircase was already in existence.

As previous to Sennacherib's invasion there was apparently no object in stopping the brook, it seems to me correct to attribute the device of the plug, as well as the making of the tunnel, to Hezekiah.

It is, however, a long step back from Hezekiah to Joshua.

A place where waters naturally issued at times from the ground, might justly be called a spring (*ain*). Therefore the fact that in the time of Joshua En-rogel is mentioned, does not, of necessity require us to admit that the staircase had been made in his time.

The fact, however, that instead of a vertical well (the easiest and surest way of reaching water in the valley) we find a staircase hewn out in such a manner that it might easily be covered up, and that one entrance is made to serve for the branches north and south, seems to me to show that the persons who constructed it contemplated the need of at times concealing it. From the time of Joshua to that of Hezekiah there was no call on the part of Israel to form such a contrivance, and after Joshua's invasion it was too late for the Jebusites to begin to make the staircase. If, therefore, there was no reason whatever for making such a peculiar staircase after Israel's invasion, we must conclude it was made before it, or in other words, it was the work of the Jebusites.

Nor need we think they were not equal to such a work. Centuries before Jacob's deep vertical well had been made near Shechem, and rock-hewn cisterns and tombs were common everywhere. The *gutter*, a still more difficult undertaking, had been already executed in Joshua's time, or soon after ; for its existence is really the only thing which can explain the remarkable circumstance that Jebus alone, of the mountain strongholds, remained untaken till the time of David.

As it would be folly to cover up the staircase and leave Gihon (Virgin's Fount) flowing as usual, it follows either (*a*) that Schick's aqueduct (*see* "Waters of Shiloah") was made by the Jebusites, as a means of secreting the waters ; or (*b*) that they inhabited Ophel west of Gihon, commanding the latter and having access to it by means of "the gutter," with the corollary that even from David's time Ophel was part of Jerusalem. As (*b*) has been proved beyond fear of refutation (1888, 46), it is superfluous to add 450 years more to the antiquity of the aqueduct by adopting (*a*).

Of two spots—one with nothing specially to mark it, and seldom, if ever, overflowing with water—and the other a living spring wit a staircase. and periodically overflowing with water, there can hardly be any question, but that the latter rather than the former would be chosen for a land-mark. Unhesitatingly, then, I assign to the staircase the title of En-rogel.

Therefore I conclude : (1) That the staircase called En-rogel, leading to the grotto, was made by the Jebusites at a date antecedent to Joshua's invasion ; and (2) that Hezekiah, on Sennacherib's invasion, put in the plug, and afterwards made the long aqueduct, thus stopping the brook that overflowed.

What changes take place ! Once the ancient Jebusite, as an Oriental would, used to enjoy himself at Gihon,

BIBL. COLL. ECCL. PRESB. ANGL.

"nunc viridi membra sub arbuto
Stratus, nunc ad aquæ lene caput sacræ."

Now-a-days, lower down, Thomson ("Land and Book"), says: "I have seen the water gushing out like a mill-stream, some 15 rods south of the well; and then the whole valley was alive with people bathing (? wading) in it, and indulging in every species of hilarity."

In the future, when the Jews with their money return to the Holy Land, they may spend some of it in "improving" Jerusalem, by making in the Kidron an artificial lake, to fish and boat upon, and illuminated in the evening with the electric light. All that is required is a great dam across the ravine close to "the spring of the fig" (near the end of the aqueduct). An average annual rainfall of 22 inches will do the rest.

In reference to Hezekiah, I have mentioned only Sennacherib and not Sargon, although Professor Sayce, in "Fresh Light from the Ancient Monuments," credits the latter with a capture of Jerusalem, and connects Is. x, 24–32; and xxii with it. But as (1) Sargon does not claim the capture on the monuments; (2) as Sennacherib does not boast of it in 2 Kings xviii, xix; (3) as the Bible says nothing about it; but rather (4) says (Is. x, 24), "Be not afraid of the Assyrian," and promises (xxxviii, 6), "I will deliver thee and this city out of the hand of the King of Assyria; and I will defend this city;" it seems to me that one has no excuse for handing over Jerusalem to the tender mercies of Sargon.

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